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The ORGANIZATION



OF GOLD MINING BUSINESS

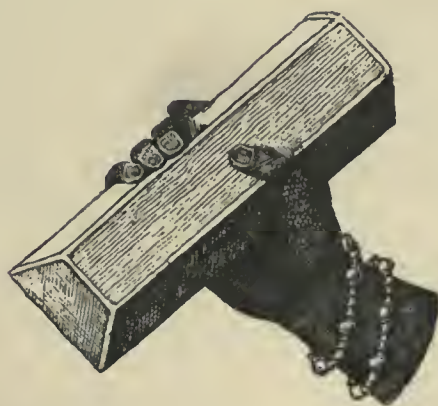
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THE ORGANIZATION
OF
GOLD MINING BUSINESS,
WITH SPECIMENS OF THE
DEPARTMENTAL REPORT BOOKS
AND THE
ACCOUNT BOOKS.

BY
NICOL BROWN.



"Nulla dies sine linea."



GLASGOW:
DUNCAN CAMPBELL & SON, 96 ST. VINCENT STREET.
LONDON: E. & F. N. SPON, LIMITED, 125 STRAND.
NEW YORK: SPON & CHAMBERLAIN, 12 CORTLANDT STREET.
CAPE TOWN, PORT ELIZABETH, AND JOHANNESBURG: J. C. JUTA & CO.

1897.

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NOTE.

THE “DEPARTMENTAL REPORT BOOKS” required may be suitably made of the same size of paper as the Specimens shewn in the following pages.

The “ACCOUNT BOOKS” should be larger in size than the Specimens, preferably of what is known as demy paper.

The copies of the Departmental Reports and Accounts, for transmission monthly to the Head Office, should be on the same Form and size of paper as the originals.

This Book should always be in duplicate—one copy at the Mine and one at the Head Office of the Company—for reference purposes.

Any local variations which are authorized by the Head Office should be noted in both the Books. Convenient spaces have been left for this purpose, and for other MS. notes.

The system is applicable to Transvaal and Australian Gold Mining, in both of which it has been used; but in the hands of intelligent officers no difficulty should be found in adapting it to the requirements of other countries.

Printed Forms of the Specimens may be had from the
Publishers, or can be ordered through any Bookseller or
Stationer.



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PREFACE.

THE system of organization presented in this book is the outcome of a large and varied experience acquired by the compiler in connection with numerous Mining and Metallurgical Works from the year 1869 to the present time.

When the compiler first began to deal with the subject in hand, there was no written authority on the subject, nor any standard Forms suitable for Mining Accounts; nor were the methods set forth in this book at all familiar in mining circles. Forms were gathered, verbally and otherwise, from older and more experienced men; but it was found that those who had some claim to be authorities on the subject were far from being in agreement in their methods, while professional accountants, otherwise, no doubt, skilled enough in their general business, but with no knowledge of the distinctive character of the system of accounts required for mining, only made matters more perplexing by initiating systems of accounts which, to practical mining men, were useless, or it might be misleading.

During the long course of years above referred to, it has been the duty of the compiler to formulate sets of rules similar to the present, and these have been printed privately and issued to friends only; but the fact that these were coming into use outside of the compiler's own circle, led him recently to publish a limited edition of "Specimens of Working Records and Account Books designed for Gold Mining Companies," which is now, in a revised and more complete form, submitted under a new title.

The main object aimed at is to harmonize the records of the working or technical and of the business or commercial departments, so that the responsible officers may understand and follow the results recorded by each other, and that the whole system of departmental reports and accounts may be so fitted in and dovetailed together as to be rendered intelligible to a London Board.

Another object, of scarcely less importance, is to secure uniformity in the classification and tabulation of the results and operations of different companies, so that they may be readily and accurately compared and contrasted.

The general purport and objects of the whole work may be briefly summarized as follows:—

I. That a well-considered design and purpose should run through the whole business arrangements, that the work of the commercial and technical departments should be reconciled and co-ordinated, and every man know his place and his work.

II. That the information received from the Mines should be of the fullest possible character. The Returns to the Head Office should therefore be complete copies of the originals in the Mines books.

III. That the entire expenditure should be restricted to certain well-defined accounts, which, in the specimens given, are as follows:—Wages, Stores Issued, General Charges, and Sundries—leaving the departmental allocations to be set out in the schedule provided, and thereby dispensing entirely, if possible, with transfer entries and the splitting up of items of expenditure. The system of keeping numerous DEPARTMENTAL LEDGER ACCOUNTS, to which the wages and stores are constantly being distributed, is a cumbersome one.

IV. That uniformity in definition and classification should be observed, so that comparison of the operations and results of different Companies may be facilitated for economic and other purposes (see page 157).

V. That the Accounts should be so kept that the cost of the work done and the rate per ton, foot, or other unit, may be clearly tabulated and shewn at every step under its proper head or sub-head of expenditure.

VI. That everything done at the works should be so recorded that, if required, a periodical inspection, by competent Engineers and Accountants, may be facilitated.

VII. That facility of reference to every part should be secured.

Although, for the sake of clearness, it has been found advisable to illustrate the Forms by concrete examples, it is not intended to advocate any particular process or method as regards technical matters, or even any special system of book-keeping, so long as the necessary results are shewn in a convenient form; the manner of recording the results, rather than the means of arriving at them, is the object here in view.

As regards technical matters, the choice of methods must always remain with the engineering and other technical advisers of the Company.

To ensure that the Forms dealing with technical matters should be as complete as possible, the compiler has availed himself of the assistance of the gentlemen mentioned below.

The following parts have been drafted or revised by MR. R. G. ELWES, M.Inst. C.E. :—

Report Book **A**, Surface Prospecting.
„ **B**, Underground Prospecting.
„ **C**, Mining and Ore Transport.

MR. ELWES has also drawn the Notes on Plans on page 21, and the short article on Mines Redemption (on page 113)—a subject often too much neglected by Mining Companies.

The following have been drafted or revised by MR. M. T. BROWN, B.Sc., A.M.Inst.C.E. :—

Report Book **D**, Milling and Crushing.
„ **F_a**, Power—Steam.
„ **F_c**, Oil Engines.
„ **G**, Maintenance of Plant.

The Cyaniding Report Book **E** has been revised by MR. J. S. MACARTHUR, F.C.S.

The Electrical Report Book **F_b** has been revised by MR. JAMES RENNIE, M.Inst.E.E.

With regard to the Book-keeping System, many valuable suggestions have been received from MR. WILLIAM NEIL, Chartered Accountant, and have been embodied herein.

Many of the officers of different Mining Companies with which the compiler has been connected over a long period of years, have also rendered him valuable assistance by their suggestions.

The set of Forms contained in this book is intended to provide for the recording of all such operations and routine work as are usual in the ordinary run of Gold Mining Companies. To include every possible modification would have been cumbersome, and some are included which may not be required by many Companies. Upon the general principle here indicated, however, it would be easy to design special forms for particular requirements—such, for example, as Hydraulicing or Dredging river beds for Gold, and the new processes for Slime treatment. The main point to be kept in view is, that the responsible Engineers should, at the outset, divide off the several operations upon a systematic plan, such as described, to be submitted to their Boards for approval.

The system of Accounts here set forth is intended for the working records of the Company, and not, of course, for publication in detail; but from these data the condensed Accounts to be presented to Shareholders can easily be prepared.

The plan adopted by Railway Companies, of annexing to their Accounts a certificate that the Buildings, Plant, Machinery, &c., are in an efficient state of repair, should be followed by Mining Companies also, with the addition of a clause that the amount written off for depreciation is reasonable and sufficient. A specimen of such a certificate is given on page 115.

To the management of many mines already well organised this book may not present many features of novelty; but where no systematic directions have been formulated, it may still be profitable that they should be made, and it is hoped that hints for that purpose may be found in this book.

The compiler would ask the attention of Directors and Members of Chambers of Mines to the question of the proper demarcation of the Divisions under which the Expenditure in the Working Accounts is grouped (see page 157). On this and any other point he invites suggestions, for a future edition.

SUFFOLK HOUSE, CANNON STREET,
LONDON, E.C., *22nd June, 1897.*



THE STAFF ARRANGEMENTS.

Introduction.

THE scientific and practical attainments required for the efficient working of a Gold Mine are now so numerous that it would be unreasonable to expect the General Manager of a Mine to be an expert in all the branches himself. He should, however, have the necessary skilled assistance in every department; and in order that ample provision may be made for the proper distribution of the Assistants' work the directions in the following pages have been drawn up.

The absence of such directions leads to friction and disorder.

In small Mines it may be impossible to have as many heads of departments as are herein provided; two or more departments may often have one head, the Records, however, still being kept separate. As an instance of combined duties, the Commercial Superintendent may act as Accountant; the Metallurgist may also act as Assayer, or the Underground Prospecting Report and the Mining and Ore Transport Report Books may be in charge of one official; other similar combinations may be formed, depending on the amount of work to be done in each department, and on the fitness of individual officers to undertake work not falling strictly in their own special field.

The Commercial Superintendent is placed in such a position of authority that the burden of many business arrangements may be taken off the General Manager's hands.

It will be observed, in reference to the divisions dealing with the Working Reports, that the responsible officer in charge is himself required to write up the Working Reports or Log Books. This, however, does not apply to the books which are referred to under the head of the Commercial Superintendent, and for which he is the responsible officer, the clerical work of which may be done by junior clerks.

The diagram given on page 36 shews the distribution of the work under the headings of the principal departments.

STAFF ARRANGEMENTS

THE GENERAL MANAGER.

The General Manager should be a thoroughly trained Mining Engineer, and he should have control of the whole of the staff.

This book does not profess in any way to teach either Mining or Metallurgy; but it does profess to shew how the expenditure of cash in the different parts of the mining and metallurgical processes, now in general use, may be followed in detail, and recorded in such a way as to be intelligible to the Directors and the Shareholders who provide the money for carrying on the business. Long delays, sometimes extending over years, are incident to all kinds of mining operations; meanwhile, those who supply the capital are naturally anxious, and have the right, to know how it is being spent. If the methods of reporting progress and expenditure are left to the discretion of Managers, uniformity of system between different Mines cannot be expected, hence the advantage of a system which can be applied to every case is obvious.

Such a system will enable a Manager of a practical type, who has not been familiar with the details of office arrangements, to follow and control these.

Those duties of the General Manager and Commercial Superintendent, which are of a joint character, are defined on the next page.

FOR GOLD MINING BUSINESS.

THE COMMERCIAL SUPERINTENDENT.

This officer is to assist the General Manager with the commercial part of the work. He is next in authority after the General Manager, and in the latter's absence acts for him. With regard to the following matters, the duties of the General Manager and the Commercial Superintendent are properly of a joint character; and in the case of requisitions and orders for Cash and Stores, and the signing of cheques (see page 77), the Board must initiate the method of procedure in each case:—

REQUISITIONS FOR CASH TO BE SUPPLIED BY THE HEAD OFFICE.
REQUISITIONS FOR STORES TO BE SUPPLIED BY THE HEAD OFFICE.
ORDERS GIVEN FOR STORES TO LOCAL MERCHANTS.
CORRESPONDENCE.
REGISTER OF LETTERS RECEIVED.
REGISTER OF PLANS.
REGISTER OF SAMPLES RECEIVED TO BE ASSAYED.
REGISTER OF ASSAY RESULTS.

It may be generally noted that all the operations, as shewn on the DEPARTMENTAL FORMS **A** to **G**, are under the direct control of the General Manager, who is the responsible head of the whole undertaking.

The STORES AND CASH ACCOUNT BOOKS (Nos. 1 to 8) and the GOLD STATEMENT (No. 9) are under the control of the Commercial Superintendent, and are to be kept on the lines laid down in the specimens.

The GENERAL EXPENDITURE SHEET (No. 8) gathers up into one statement the summary of the total expenditure for the month, with the necessary references to the Forms **A** to **G** for the details of the work done, thus affording a complete evidence of how the money has been spent in each of the separate departments indicated by the letters.

The GOLD STATEMENT (No. 9) also collects in one sheet the particulars of the Auriferous Ore treated, as given on Forms **C**, **D**, **E**. The amount of Gold Contents in the Ore treated, the amount of Gold extracted therefrom by the process, and the amount lost in process, as certified by the Assays made at the various stages of the process, are all brought together in one Statement and clearly reconciled and agreed.

STAFF ARRANGEMENTS

THE ASSAYER.

The duties of this officer are to assay the ore, tailings, residues, and bullion, thereby enabling the General Manager to control and check the efficiency of the operations going on at every stage in the Mines and Metallurgical Works.

The checking of the Gold contents of ore in all its stages is of vital importance to a business of this kind; and the whole value of the Departmental Reports and figures may be rendered worthless and misleading if the assaying be not done with scientific exactness.

The want of a proper system of taking samples has brought assays into unmerited disrepute with mining men,—the fact usually being that the sample only is at fault from not being truly representative of the bulk of the ore sampled.

It is of importance, therefore, that the sampling, which precedes the assaying, should receive great attention. Specimen methods of sampling are to be found on pages 25 to 31.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

STAFF ARRANGEMENTS

THE STAFF.

The staff appointments should be nearly all made by the Board, and the engagements as made advised to the General Manager. It is recommended that those marked by an asterisk should be so appointed.

I. The special work of the following has already been referred to:—

- * **GENERAL MANAGER.**
- * **COMMERCIAL SUPERINTENDENT.**
- * **ASSAYER.**

II. The other officers, *arranged according to the sequence of the work or process*, are as follows, the evidence of their work being recorded in the subsequent special Forms lettered A to G:—

- A. SURFACE PROSPECTOR.**
- * **B. MINE SURVEYOR.**
- * **C. MINING ENGINEER OR MINE SURVEYOR.**
- D. MILL SUPERINTENDENT, who should be a Mechanical Engineer.**
- * **E. METALLURGIST.**
- F. MECHANICAL ENGINEER.**
- G. MECHANICAL ENGINEER.**

III. The duties of the following relate almost entirely to the Cash and Stores and to the Book-keeping and Office Work generally, see Account Books Nos. 1 to 9.

- ACCOUNTANT AND CASHIER.**
- WAGES CLERK.**
- STORES CLERK OR STORE KEEPER.**

In drafting the list of officers as above, a perfectly full complement has been given; and in specifying the records required from each man in the different Forms A to G, it is assumed that there is a separate head for each department.

If, however, as already mentioned, the work of two or more departments is managed by one officer for the sake of economy, as may be necessary in small Mines, the records of each department should, nevertheless, be kept separate on the special forms provided in this book.

Any changes the Manager may desire to make must be made in harmony with the above design. The system lends itself to local variation, and is sufficiently elastic to admit of changes, provided they are made advisedly.

All such variations in the arrangements should be definitely advised to the Head Office, and, when approved, should be entered in this book, with the date of approval.

FOR GOLD MINING BUSINESS.

The following is a list of the staff, *arranged according to the special technical training of each Member, for the different departments of the work.* The juniors in each section are the natural successors to the seniors, on vacancies occurring, and if they are otherwise competent, should be promoted accordingly:—

MINING ENGINEERING STAFF.

GENERAL MANAGER.

MINE ENGINEER OR MINE SURVEYOR.

METALLURGICAL STAFF.

METALLURGIST.

ASSAYER.

MECHANICAL ENGINEERING STAFF.

MECHANICAL SUPERINTENDENT.

MILL SUPERINTENDENT.

BUSINESS STAFF.

COMMERCIAL SUPERINTENDENT.

ACCOUNTANT AND CASHIER.

WAGES CLERK.

STORES CLERK OR STORE KEEPER.

The General Manager must report yearly to the Board on the efficiency of each member of the staff.

A copy of the usual Engagement Form is to be found on page 9.

STAFF ARRANGEMENTS

STAFF ENGAGEMENT FORM.

Articles of Agreement made and entered into this *First* day of *December*, One thousand eight hundred and ninety- *six*, between *Donald Macalpine of Airdrie, N.B., Mining Surveyor* (hereinafter called the Assistant)—(see Note 1)—of the one part, and the *Transvaal Gold Company, Limited* (see Note 2), whose Head Office is at *Suffolk House, Cannon Street, London, E.C.* (hereinafter called the Company), of the other part :

The Company hereby agree to engage the Assistant, who hereby agrees to enter into and continue in the service of the Company, as Assistant, in any such branch of the Company's business as the Managing Director of the Company may from time to time direct him to employ himself, for and during the space of *two years*, to commence from the *First* day of *January*, 18*97*, and thenceforward continuously until the engagement of the Assistant is terminated by notice, as hereinafter provided, on the conditions following :—that is to say,

1.—The Assistant shall, while he shall continue in the service of the Company, faithfully and diligently serve the Company, as such Assistant as aforesaid, during the term aforesaid, to the best of his knowledge and ability, at such place or places in *South Africa* to which he may from time to time be directed to proceed by the General Manager or other authorized officer of the Company.

2.—He shall devote his whole time and attention, with zeal and energy, to the due and faithful performance of his duties aforesaid, and shall use his utmost exertions to promote the business and interests of the Company during the continuance of this Agreement ; and shall not at any time absent himself from the service of the Company, nor from the due and regular performance of his said duties, unless unavoidably prevented by illness, or with the previous consent, in writing, of the General Manager or other authorized officer of the Company ; and shall not at any time hereafter divulge or make known any of the trusts, secrets, processes, dealings or accounts of, or relating to the said business, or to the affairs of the Company, but shall keep the same undisclosed and inviolate.

3.—He shall in all things be subservient to and obey the orders and directions of the General Manager or other duly authorized officer of the Company in relation to the said business ; and shall not, during the continuance of this Agreement, directly or indirectly, alone or in partnership, be connected with or concerned in any other business than that of the Company, or be engaged in any capacity whatsoever other than in the service of the Company during the continuance of this Agreement ; and shall not engage in any speculation, business, mining, inspecting or prospecting for account of himself or others, without the previous consent and written authority of the Board of Directors.

4.—He shall attend to the rules for reporting all particulars necessary to shew the operations of the department in which he is engaged, so far as he is capable of furnishing the same (see Note 3), as specified on the official form laid down for such department hereto annexed (see Note 4).

5.—The Company shall, during the continuance of this Agreement, and provided the Assistant shall duly observe and perform the agreements, on his part, herein contained, pay to the Assistant the sum of *Two hundred pounds* per annum as salary, and so in proportion for any less period than a year, by equal monthly payments, on the first day of each month, the first payment thereof to be made on the *First* day of *February*, 18*97*.

6.—The Company shall also provide the Assistant with a free passage,.....class, to such place as he shall be required to proceed.

7.—Either of the parties hereto may, at any time subsequent to the termination of the said period of two years, terminate this Agreement and the engagement hereby

FOR GOLD MINING BUSINESS.

made, by giving or sending by post, in a registered letter to the other party hereto, *three* calendar months' notice in writing; such notice to be given or sent to the Company at their said Head Office, or to the Assistant at his usual or last known place of abode; and at the expiration of such *three* calendar months from the giving or sending of such notice, the said engagement and this Agreement shall determine. Provided always that the Company may determine the said Agreement at any time on payment to the Assistant of *three* months' salary in advance. In the event of the said Assistant leaving the Company's service after a period of two years, and duly observing the agreements herein contained, on his part, the Company shall pay the expense of his return journey to England, provided the said Assistant does not leave the Company's service for employment elsewhere in South Africa.

8.—If the Assistant shall at any time neglect or refuse, or from illness for more than two consecutive weeks, or any cause whatsoever become or be unable to perform or comply with all or any of the Articles of this Agreement, or any of the duties required of him, or all or any of the orders of the General Manager or other duly authorized officer of the Company, or if he shall in any manner misconduct himself, or shall transact any business for his own account alone, or jointly with or for the account of any other person or persons, company or companies, or if he employ himself in any capacity whatsoever, other than in the sole employ of the Company, without the previous consent and written authority of the Board of Directors of the Company, it shall be lawful for the Company, or for the General Manager of the Company or other duly authorized officer of the Company, to terminate the engagement of the Assistant without giving any such notice or payment in advance as aforesaid; and immediately thereupon the salary and every other payment which the Assistant may then or might thereafter be entitled to receive, and all benefit and advantage whatsoever to be derived by him under or by virtue of this Agreement, shall cease.

9.—The Assistant hereby agrees to pay to the Company the sum of *One hundred pounds (£100)*, as liquidated and ascertained damages, on each and every breach of any of the stipulations, agreements, matters, and things contained in this Agreement, and, on his part, to be kept, performed, and observed.

It is hereby, lastly, agreed between the parties hereto, that this Agreement shall, in all respects, be construed and carried into effect according to the law of England, so far as may be and the circumstances will permit.

As Witness the hand of the Assistant and the Common Seal (see Note 5) of the Company, this *First* day of *December*, One thousand eight hundred and ninety- *six*.

Signed by the said *Donald Macalpine*,
in the presence of

William Macgregor, *Witness*.

The Common Seal (see Note 5) of the Company was
hereto affixed in the presence of

Thomas Fraser, *Secretary*.

A. B., }
C. D., } *Directors*.



NOTE No. 1.—When an Agreement is required to be made with a General Manager, it should be drawn up with an accompanying Power of Attorney, in the usual way, by the Solicitor of the Company.

NOTE No. 2.—If the Company's name is inserted the Agreement must be sealed, and a 10/ stamp is required. If an official is made a party to the Agreement, and signs on behalf of the Company, only a 6d. stamp is required.

NOTE No. 3.—The rules should be annexed to the Agreement, and signed by the employé. If any degree of good organization is to be attained, general rules of some kind—for instance, the rules under the headings of the Departmental Reports in this book—may be used, or some modification or improvement thereof.

NOTE No. 4.—In cases where it is necessary for an Assistant to have charge of money, and to obtain a monetary guarantee for fidelity, suitable clauses should be added to the above Agreement for these purposes, drawn up by a Solicitor.

NOTE No. 5.—If an official is made a party to the Agreement, this clause will run thus:—"As Witness the hands of the said Assistant and the said *official* on behalf of the Company."

In addition to the staff already mentioned, there are also the Foremen, whose duties are to superintend and keep the time of the men employed in the works.

Month of 189 Department.

[illegible]

It will usually happen that each department has a Foreman, so that the whole of that Foreman's gang will be debited to that department, unless in cases where men have been transferred to another department for a short time; in which cases care must be taken to see that the men are not twice paid.

The following is a specimen of the Ticket:—

[illegible]

FOR GOLD MINING BUSINESS.

The Foremen also write the orders for goods which may be required from the Store. The following is a specimen :—

ORDER BOOK (<i>used by Foremen</i>).	
No. ....	.....189
.....189	.....<i>Works</i> .
..... <i>Dept.</i>	<i>To the STORES CLERK.</i>
.....	<i>Please deliver to</i> <i>Department</i>
.....
.....
.....
.....
..... <i>Foreman.</i>	.....<i>Foreman.</i>

Full instructions regarding Foremen should be specially written out by the Manager, or by the Superintendent of the department, for the approval of the General Manager.

The Foremen should also be provided with Note Books, into which should be entered all memoranda which it is necessary for them to keep.

STAFF ARRANGEMENTS

REQUISITIONS FOR CASH TO BE SUPPLIED BY THE HEAD OFFICE.

Estimate.

An estimate to be made of the total amount required for each month, and regularly transmitted to the Head Office in ample time to make provision for the amount required.

The efficient control of expenditure will be much aided by a systematic allocation of funds to different departments before they are spent. A forecast or "Budget" should be required from the responsible officers, so that, as far as possible, expenditure may be approved before, and not after, it is incurred, and that funds may be provided in due time. Neglect of this precaution has often landed Companies in financial difficulties which might have been avoided.

Authority.

To be signed by the General Manager and/or the Commercial Superintendent, as may be specially arranged by the Board.

To be Copied in Letter Book, titled REQUISITIONS TO HEAD OFFICE.

Letter Book copies of these requisitions should be kept in preference to counterfoils.

FOR GOLD MINING BUSINESS.

REQUISITIONS FOR STORES TO BE SUPPLIED BY THE HEAD OFFICE.

Estimate.

As in the case of Cash, an estimate List of Stores required, which are to be supplied from the Head Office, should be made up regularly, and a requisition sent to the Head Office in ample time for them to be forwarded.

In order to keep the General Manager apprised of what Stores are required when stocks run low, a list should be regularly supplied by the Stores Clerk to the Manager, so that he can order what is necessary.

Specimen.

The following is a usual specimen for such a Form:—

(NAME OF THE COMPANY.)				
Requisition for Stores, No. _____				
.....189				
<i>Please supply the following:—</i>				
No.	DESCRIPTION.			

Authority.

The General Manager and/or the Commercial Superintendent, as may be specially arranged by the Board, should sign each requisition.

To be Copied in Letter Book, titled REQUISITIONS TO HEAD OFFICE.

Letter Book copies of these requisitions should be kept in preference to counterfoils.

STAFF ARRANGEMENTS

ORDERS FOR STORES TO LOCAL MERCHANTS.

All Stores which it may be found can be advantageously obtained locally, are to be so ordered.

Specimen.

The following is a usual specimen of an Order Form :—

(NAME OF THE COMPANY.)

Order No.

.....189

Please supply the following:—

No.	DESCRIPTION.

Authority.

All orders are to be signed by the General Manager and/or the Commercial Superintendent, as specially arranged by the Board.

To be Copied in Letter Book, titled "ORDERS TO LOCAL MERCHANTS."

Correspondence.

After each order is signed all subsequent correspondence as to forwarding, delivery, &c., should be carried out and signed by the Commercial Superintendent.

Invoices.

These should be duly compared, as to quantity and price, with the order as given in this book. See reference to this on page 81.

Current Prices of Stores.

A book with this information should be kept for reference.

Cheques.

The General Manager, in conjunction with the Commercial Superintendent, signs the cheques for payment of the goods.

Copies for the Head Office.

A press copy of each order, say over £100 in amount, to be sent to Headquarters Office.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

STAFF ARRANGEMENTS

CORRESPONDENCE.

Head Office Letters.

A letter should be sent to the Head Office by the General Manager every week respecting the technical and working affairs of the Company; and a letter should also be sent by the Commercial Superintendent every week giving reports on matters under his supervision.

Legal Correspondence.

The Commercial Superintendent should bring before the General Manager all legal business, and the Manager should arrange with the Commercial Superintendent the course to be adopted. Letters on such business should always be signed by the Manager.

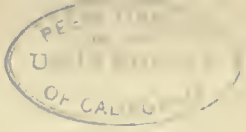
Authority.

When it is necessary for the General Manager to be absent, he should leave specific instructions for the Commercial Superintendent to sign any letters and orders in his absence, such letters to be signed under the phrase "For the General Manager." On his return he should read such letters over, and initial them in Copy Letter Book. Except in special cases, when letters are marked Private, all other correspondence, either outgoing or incoming, is open to both General Manager and the Commercial Superintendent.

The Letter Books.

The Books already referred to on previous pages, and those required for the above correspondence, are as follows :—

- A. REQUISITIONS TO HEAD OFFICE FOR CASH AND STORES.
- B. ORDERS TO LOCAL MERCHANTS.
- C. LONDON OR HEAD OFFICE LETTERS.
- D. LETTERS TO LOCAL MERCHANTS AND FORWARDING AGENTS.
- E. GENERAL AND LEGAL LETTERS.



FOR GOLD MINING BUSINESS.

REGISTER OF LETTERS RECEIVED.

It is of much importance in a business of this kind to have a Register of Letters Received kept in a systematic manner, so that there may be no evasion of facts or suppression of information, all of which is the property of the Company.

Specimen.

The following is the usual form of such a book:—

Register of Letters Received,							
Date Received.		Date of Letter.		Consecutive Number.	From	Subject.	Answered.

Responsible Officer.—The Commercial Superintendent.

STAFF ARRANGEMENTS

REGISTER OF PLANS.

As in the case of Letters, a Register of Plans Received should be kept in a systematic manner, so that there may be no evasion of facts or suppression of information; all of which is the property of the Company.

Specimen.

In large concerns it may be found to be of advantage to have a book for entries made in chronological order, as received, of which the following is a specimen :—

Register of Plans,						
<i>Date Received or Completed.</i>	<i>No. as Received.</i>	<i>No. of Letter of Advice.</i>	<i>DESCRIPTION.</i>	<i>From Whom Received.</i>	<i>No. as Arranged in Head Office.</i>	<i>REMARKS.</i>

Another book should be provided for indexing in detail under the following heads:—

TOPOGRAPHICAL PLANS.
GEOLOGICAL PLANS.
MINING PLANS.
PROGRESS SECTIONS.
MECHANICAL PLANS.

These headings are all self-explanatory.

The Machinery Models, Templates, and Gauges are also to be registered in this book in a separate part.

Specimen.

The following is a usual specimen of such a book :—

Index of Plans,							
<i>Date Received or Completed.</i>	<i>No. as Received.</i>	<i>Consecutive Arranged Numbers.</i>	<i>No. of Letter of Advice.</i>		<i>DESCRIPTION.</i>	<i>DRAWN BY</i>	<i>REMARKS.</i>

FOR GOLD MINING BUSINESS.

Responsible Officers.

The Manager should arrange, in some convenient way, that Plans from all departments should be registered in this book.

This book is kept in sections by the officials, as may be arranged by the Manager.

All Plans sent to Head Office should always be numbered consecutively.

Directions for Plans.

On pages 21 and 22 will be found suitable rules for obtaining uniformity in Plans.

STAFF ARRANGEMENTS

DIRECTIONS FOR PLANS.

System of Reference by Squares.

All drawings are, as a rule, to be made upon paper of double elephant size. It will be convenient, in the case of survey plans, plans of mine workings, &c., to adopt a systematic method of reference to such plans, so that, for instance, small tracings sent home to illustrate any particular point, and progress tracings, can be readily and accurately fitted on to the duplicate plans maintained in the London Office.

To do this, the sheet should be divided into squares of exactly 6 inches in the side, by fine horizontal and vertical lines. The sheet being 42 inches long, there will be seven columns of squares in the length, numbered from left to right, 1 to 7. The width is 27 inches, which gives four horizontal rows of squares, to be lettered from top to bottom, A, B, C, D; and there will be 3 inches over, which can be left as a margin of $1\frac{1}{2}$ inches top and bottom, thus—

A							
B			X				
C							
D							
	1	2	3	4	5	6	7

Now, if it be required to send home a tracing of some portion of the plan included within the square marked **X**, it will only be necessary to shew on the tracing the index lines enclosing that square, and to state that it is square No. 4 B on such and such a drawing. The tracing can then be placed in its exact position on the London plan, and the new work fitted on to the old with accuracy.

Surveys.

It will greatly facilitate the extension of surveys in the future, and the fitting together of new with old work, if, in the first place, an accurate skeleton survey be made of the whole ground over which any detail plans are likely to be required afterwards; the skeleton survey being made merely to fix permanently the position of a few points and lines, which can afterwards be used as bases on which to tie the interior detail surveys. In short, the surveys should be elaborated from the outside inwards, not from the inside outwards. For a skeleton, a trigonometrical survey from a carefully-measured base line is best; but very fair accuracy can be obtained by enclosing the ground within a polygon, surveyed with a good compass and chain, if the errors be distributed over the circuit by working out the latitudes and departures on the traverse system, and apportioning the errors among the sides of the polygon.

Sections.

In cases where deep workings are in use, and sectional plans are required to elucidate progress, an application of the index system used for survey plans will be advantageous.

Section paper, containing 64 squares to the inch, can be obtained in continuous rolls, 24 inches wide, besides the margin. This can, therefore, be cut in lengths of 42 inches, which will be the standard double elephant size.

FOR GOLD MINING BUSINESS.

Each of these may be divided by lines into 28 squares of 6 inches square, numbered and lettered as in the case of survey plans. On a scale of 40 feet to 1 inch, each of the small divisions of this paper ($\frac{1}{8}$ inch) represents 5 feet, and will therefore shew levels, cross-cuts, &c., distinctly. As 1 foot on this scale represents 480 feet, and the paper shrinks a little, the scale is sufficiently near $\frac{1}{500}$ natural to compare fairly well with a surface plan on that scale; but the horizontal plan of underground workings should be shewn on the section paper above or below the sectional plan; the width of the paper gives plenty of room for this on the 40' scale.

For details requiring a larger scale, the same section paper can be used for a scale of 16 feet to the inch, which is very near $\frac{1}{200}$ natural.

Scales.

In all cases it is desirable to adopt natural scales— $\frac{1}{50}$, $\frac{1}{200}$, $\frac{1}{1000}$, or as the case may be—because dimensions can be read off such drawings in any desired system of measurement—English, French, Dutch, &c. In addition to the scale usually shewn upon plans, the scale used should be described in words.

Datum.

A permanent datum should be established from the first, to which all levels should be referred. When levels have been brought up from the sea level, the datum should be a fixed number of feet above sea level. If this is not available, some permanent, indestructible, and easily identified bench mark should be established, and all levels connected with it.

For mining sections it is more convenient to reckon reduced levels downwards from a datum line in the air, than from one below upwards, as in railway or hydraulic surveys.

The reduced levels will then read the same way as the depths of shafts, &c. This, of course, does not prevent the datum line being assumed at a fixed number of feet above sea level; but the reduced levels will be x feet (or metres) below datum instead of above it.

North Point.

Every plan should have the true north or meridian shewn upon it if possible; but if the variation is not known, and only the magnetic meridian can be given, it should be so described on the plan.

Natural Scales.

As there is sometimes a difficulty in obtaining natural scales suitably arranged for plotting from measurements taken in feet, it may be well to mention that a set of such scales, specially designed for surface and underground work by the writer of these notes, can be obtained from Mr. W. F. Stanley, Railway Approach, London Bridge, London, S.E. They may be ordered as "Elwes' Natural Scales, Nos. 1 to 4."

STAFF ARRANGEMENTS

REGISTER OF SAMPLES RECEIVED TO BE ASSAYED.

Samples of all kinds of ore and tailings should be taken according to arrangements made by the General Manager, such as are specially adapted to the circumstances of each case. In making his arrangements he will be guided to some extent by the specimens given on the following pages.

All manual labour required in connection with sampling will be specially arranged by the Manager.

In the discretion of the Manager, the sampling is to be done either by the Assayer or some one else appointed by the Manager. All samples to be registered in a book kept for the purpose.

Specimen.

The following is a usual copy for such a book:—

Register of Samples Received for Assay.						
Number.	Date Received.		DESCRIPTION.	From Whom Received.	Determination to be made.	Date When Finished.

After a sample has been once drawn, representing any particular quantity of ore—say 100 tons—the assay should be made on this sample. It is irregular to mix samples, say of two lots of 100 tons each, and make one assay for the 200 tons, as it has been found in practice that such a method does not give exact results. If it is considered that 200 ton lot samples are sufficient, then the samples must be drawn as representing the 200 tons; or they may be made upon larger lots, as may be considered desirable.

Entries for this Book.

The samples received are to be carefully labelled, numbered, and registered in this book.

Responsible Officer.—The Assayer.

Directions for Sampling.

On the following pages, 25 to 31, are specimens of Sampling Methods, under the following heads:—

Samples taken of Surface Exposures.

Samples of Ore taken in various kinds of Ore Bodies.

Samples of Ore taken from the Mine and passed into Process.

Samples taken during stages of Process.

Samples taken of Bullion Produced.

These are the classes of samples which fall to be registered.

If any samples are taken to be assayed for a neighbouring Company, they must be specially marked; and any assays so done must be charged for.

Employés are not allowed to assay any samples for their own account.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

STAFF ARRANGEMENTS

SAMPLING.*

HOW SAMPLES SHOULD BE TAKEN OF SURFACE EXPOSURES OF GOLD-BEARING ROCKS, SURFACE FLOAT, AND IN PROSPECTING WORK GENERALLY.

The primary form of all prospecting in a suspected gold-bearing belt of country is, necessarily, to pan the alluvial wash found in its valleys, creeks, or river beds.

A series of pannings along the alluvial patches, formed from the disintegration and denudation of the adjacent hills and uplands, will reveal the existence of Gold if it has formed up in the rocks within the drainage area of the district.

If Gold is found to exist, search may be instituted for the containing reefs; and the value of the various outcrops, float, and exposures, which may be ultimately found along the line of the reef, must be determined as a guide to more extended search and exploratory work in depth.

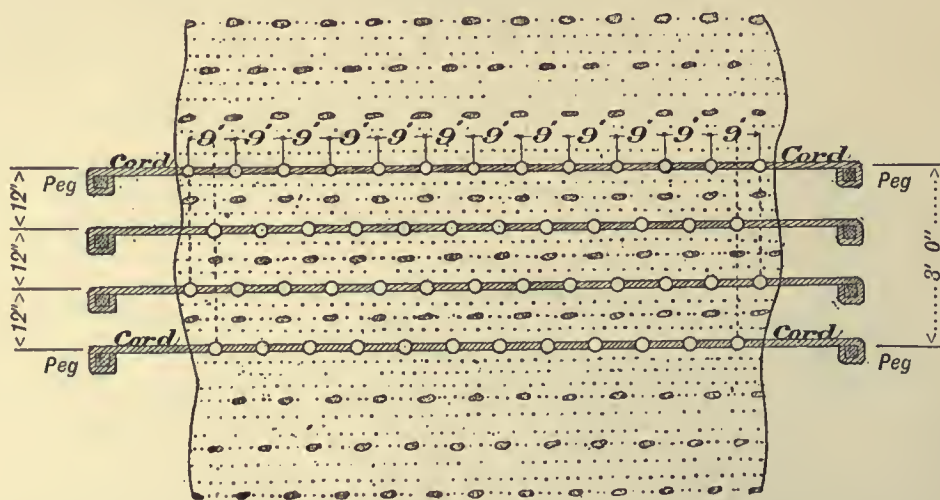
In the absence of solid outcrops of reef, from which to determine the line of reef in direction, attention should be directed to any patches of quartz float to be seen. If a series of these patches of quartz float is discovered, it will be more conducive to orderly working to connect them on a rough map, from a preliminary survey. Once in position on the map, an intelligent observer will be able to decide if they form along the line of one main reef, or form separate and independent bodies.

Let it be assumed, first, that they form the surface indications of one main reef. The point to be determined, in the first place, is the value of each patch, treated separately.

The sampling will be conducted at right angles to the axis of the float patch, or, in any case, at right angles to the supposed line of reef underlying or adjacent to it. The various samples, taken in this way along the axis of the patch, should be equi-distant from each other. The actual distance, in feet, between them must be determined by the length of the patch—for a small patch, say every 20 feet; and for a larger patch, 50 feet may be found suitable.

In the taking of the sample as little as possible should be left to the judgment of the sampler, in taking one piece of float quartz or in rejecting another. To provide against this difficulty the following plan is suggested:—Four thin cotton or hemp lines, parallel to and equi-distant from each other 12 inches, should be stretched across the part of the float patch to be sampled, and at right angles to its axis, and made tight with pegs on either side. On each of these lines let there be a red cotton tag every 9 inches or thereby. The disposition of the strings and red markers are as shewn on the diagram:—

QUARTZ FLOAT.



* The Compiler is indebted to MR. DAVID FERGUSON, Umtali, for the Specimens of Rules for Sampling and the relative sketches up to page 29.

FOR GOLD MINING BUSINESS.

It will be seen that the red markers on one line are not directly opposite those of the adjacent, but of the alternate line. The sampler begins on the first line, and picks up a small piece of quartz float at each of the red tags, and repeats the same thing at the red marks of the other three lines. The float from all the lines are now put together and ground up in the usual way, and afterwards rolled on a glazed cotton cloth, cut and quartered until the sample is down to the required quantity. It is then put into a canvas bag, the number of which is registered in the Sample Book, for reference at any time if successive assays of the sample should be required.

A series of assays, made from samples taken in the manner described above, at regular intervals along the quartz float patch, will give the value of the patch as a whole, and the individual assays will shew the good and the poor places in it.

In the same way, the mean of all the assays made from samples of the different patches will give the surface assay value of the reef, and the average assay value of each patch independently will shew where the reef is highest in value.

From the accumulated information thus obtained, the position, extent, and character of the exploratory work to prove the reef in depth and in value can be determined with considerable accuracy. In the absence of such bold and infallible indications as gold-bearing reef outcrops or ancient works, the prospector must fall back on surface indications, such as quartz float, and make his judgments rest on the evidence carefully obtained from them.

Sampling reef outcrops should just be done every way the same as that described for reef sampling in depth on the following page, so that the rules laid down for the one will apply equally to the other.

The more assays made from correctly-made samples, over a reef exposure, outcrop, or reserve, in regular sequence, the more likely is the mean of the total number to approximate to the actual assay value of the whole ore body.



STAFF ARRANGEMENTS

SAMPLING—continued.

HOW SAMPLES SHOULD BE TAKEN OF ORE FOR AVERAGE ASSAY VALUES OF THE ORE IN RESERVES, IN STOPES AND GALLERIES OF THE MINE.

The sample should invariably represent, as accurately as possible, the average value of the ore at the point sampled; and the system of sampling which will give this result, with the least handling or selection of the sampler, is the most reliable.

As far as possible the hand of the sampler ought not to touch any individual part of the ore forming the sample; as, in doing so, a piece of ore may either be added to or rejected from the sample, which materially alters its value and renders the average assay value obtained from it unreliable and incorrect.

The sampler should work with tools only in taking his samples, and these are few and simple. A pick, a gad, and a hammer, with a piece of cotton, preferably glazed black on one side, for catching the ore as it falls from the stroke of the tools, are his full requirements. By careful cutting on the part of the sampler, any ore, lumps, incrustations, or powdered ore falling into the cotton sheet held under his tools, will represent the average of the ore body at the point operated on. Whatever falls into the cotton sheet should be ground up fine before any part of it is taken for assay by cutting and quartering.

Samples should be taken along a line at right angles to the dip of the ore body; or, what is the same thing, at right angles to its hanging and foot walls. They should also be taken from the roof or sides of the galleries and stopes, in preference to the floor, on account of the facility of catching in the cotton sheet all the ore that falls away from the tools of the sampler.

Where the ore is very uniform in composition, one line of sampling, cut across the ore body at right angles to its dip, may represent a correct average of the value of the ore at that part of the gallery or stope. Much more frequently, however, it will be found that it does not; and to guard against such possibilities, the sampler should have every such sample composed of the cuttings from three lines, running at right angles to the walls of the ore body. These three lines should be equi-distant from each other, and, if possible, not less than $1\frac{1}{2}$ foot to 2 feet apart.

SAMPLES TAKEN FROM THE ROOF.—This is the place to be taken where possible, then the three lines will represent a reliable average of $4\frac{1}{2}$ feet to 6 feet of the ore body along its strike, and its thickness so far as exposed.

SAMPLES TAKEN FROM THE FACE OF A LEVEL.—Then the three lines will represent a reliable average of $4\frac{1}{2}$ to 6 feet along the dip of the ore body, and its thickness so far as exposed.

SAMPLES TAKEN FROM THE SIDE OF A CROSS-CUT.—The three lines will represent a reliable average of $4\frac{1}{2}$ to 6 feet along the dip of the ore body, and its thickness, so far as exposed; and if the sides of two adjacent cross-cuts are sampled in this way, the mean of the two will represent a fair average of $4\frac{1}{2}$ to 6 feet high by the thickness of the ore body between its containing walls, or so far as exposed, and by the length between the cross-cuts.

In this way it will be observed that a sample from one line, across the ore body, represents an assay value in position only. A sample from the roof or face of a level, in three lines, represents a value in area; while a sample, the mean of two sides, and three lines in each, across a cross-cut, represents the value in volume or cubical contents.

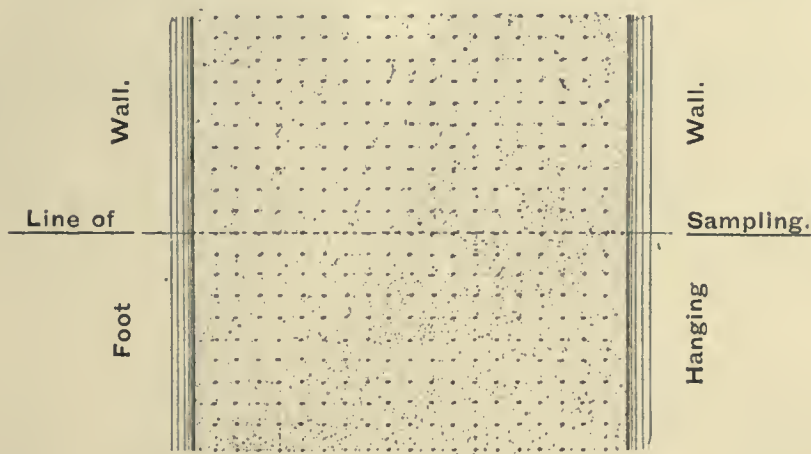
Preferably, however, samples taken in three or more lines equi-distant from each other, and parallel and at right angles to the walls of the ore body in the roof of the gallery or stope, should be obtained. By repeating the samplings in this way, at as uniform distances along the levels, winzes, rises, and stopes in the ore body as possible, the mean of the collected assay results should give a fair average of the value of the ore body in reserve.

FOR GOLD MINING BUSINESS.

The diagrams on this and on the next page will explain the conditions of ore distribution in the ore carrier, ore matrix or reef body, under which the various methods of sampling will operate to advantage.

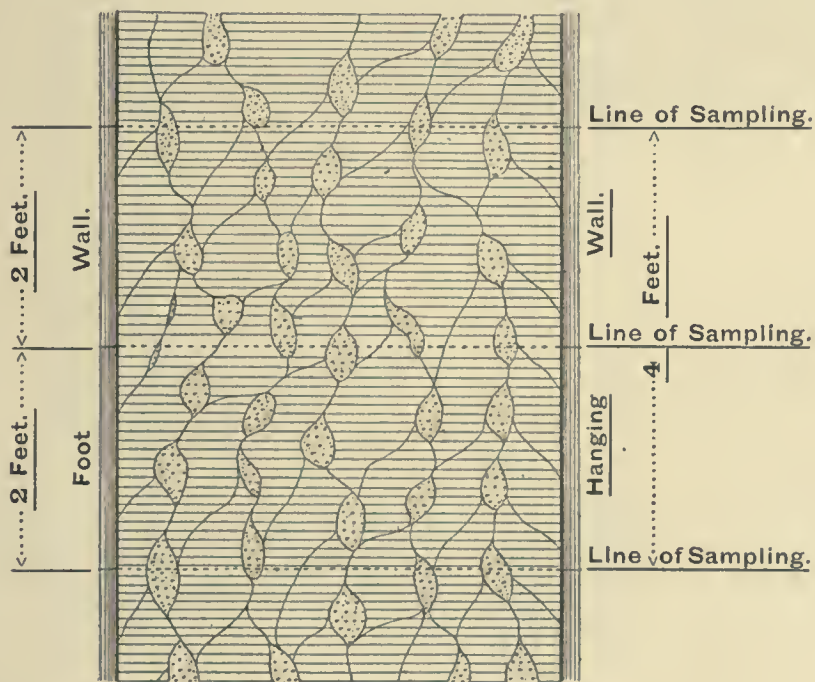
ORE BODY OF UNIFORM COMPOSITION.

The diagram shews where, in an ore body, as described above, a single line cut across the ore body at right angles to its walls would give a fair average value of it. The assay from a sample obtained in this way would give a value in position only.



ORE BODY OF IRREGULAR COMPOSITION.

The diagram shews an ore body, as described above, where a single line sample would be likely to give an incorrect value, and where three or more lines of sampling at right angles to the walls of the ore body would approximate much more closely to the true value of the body, and would represent a value in area.

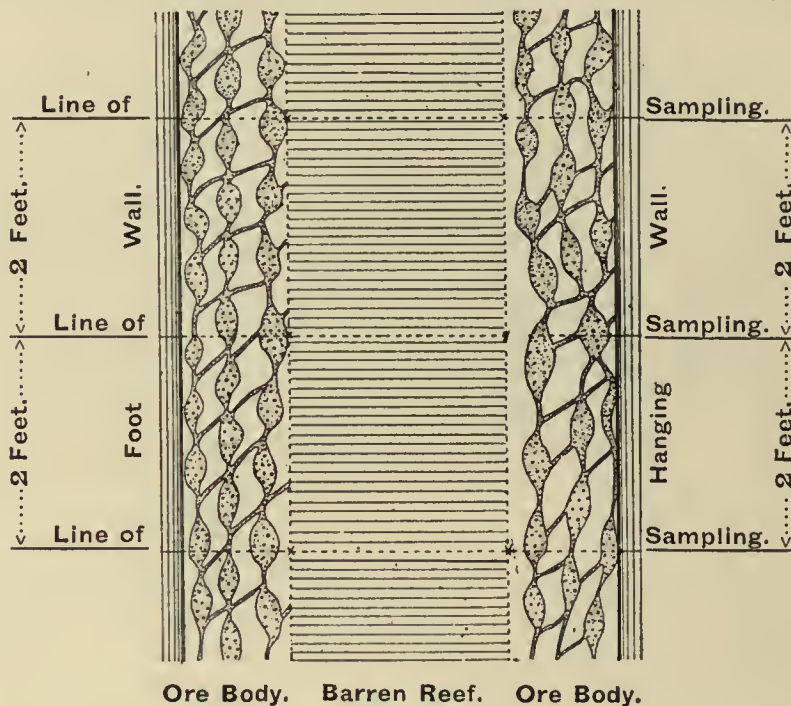


STAFF ARRANGEMENTS

SAMPLING—continued.

ORE BODY OF IRREGULAR COMPOSITION, AND AT THE SAME TIME WITH THE ORE LYING AGAINST THE WALLS, WITH BARREN ROCK IN THE MIDDLE.

The diagram shews an ore body as described above. In such a case each side of the ore body might be sampled separately and treated as an independent body, but with the three or more lines across the short width selected for assay.



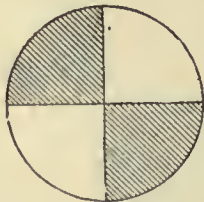
Supposing the sample is bulkier than desirable, it will still be the lesser evil to spend more time and work in grinding it up than attempting to reject any part of it previously.

Once ground up, the sample should be rolled along a black glazed cotton sheet, laid upon a flat table or floor. The rolling of the powdered ore, as distinguished from dragging it, should be alternately from right to left, and at right angles to it, to and from the operator.

In this way, by repeating the movements sufficiently, it will be found that the various streaks of colour running through the powdered ore at the beginning disappear, and one homogeneous shade pervades it. The ore may then be rolled into a round heap, approximating to a truncated cone, and cut into four divisions with a vertically held plate of ordinary window glass or thin sheet metal, squared at the edges, making two cuts at right angles to each other. This is called "Quartering."

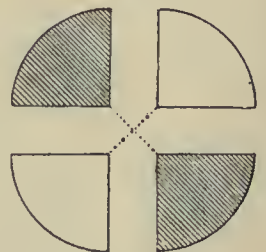
QUARTERING.

This diagram shews how the quartering is done.



QUARTERING AFTER SEPARATION.

This diagram shews the quarters after being separated from each other.



Either the two corners hatched, diagonally opposite each other, or the other two corners should be taken, and again mixed and rolled together on the glazed cotton sheet, afterwards cut and quartered again, and the process repeated until the sample has reached the size required.

At this stage the sample should be placed in a bag with a number which is registered in the Sample Book at the Mine, and can be referred to when necessary.

FOR GOLD MINING BUSINESS.

SAMPLING—continued.

SAMPLING ARRANGEMENTS FOR ORE MINED AND PASSED INTO PROCESS.

WHERE THE SAMPLE IS TO BE TAKEN.

All ore going into or coming out of the stonebreaker must be carefully sampled.

QUANTITY OF ORE TO BE TAKEN AS THE SAMPLE.

From one in every twenty waggons, a shovelful, or other fixed quantity, to be set aside, in cases where the Gold is well distributed through the ore.

In cases where the Gold is unequally distributed, it is advisable to take from one waggon in every ten.

REDUCTION OF BULK OF THE SAMPLE.

The large sample having been thus selected and mixed, it should be reduced by dividing the heap into four, and proceeding as already described on page 29. It should finally be divided into two or three parts and put up in parcels, numbered (and sealed when necessary). One part is given to the Chemist to be assayed, and the others retained for reference.

BOTTLING AND SEALING THE SAMPLE.

Samples for transmission are to be put into bottles and sealed.

The foregoing rules also apply to sampling the ore as it passes through the various processes. This must be regularly and carefully done.

STAFF ARRANGEMENTS

SAMPLING—continued.

SAMPLING ARRANGEMENTS FOR TAILINGS.

TAILINGS FROM THE MILL.

In sampling tailings from the Mill, the man on shift takes a dishful from each discharge launder every hour, care being taken that there is no concentration of sands from slimes. All these samples are put into one bucket. At the end of twenty-four hours a little alum or lime may be added and stirred up, and the whole then allowed to settle for a couple of hours.

When the sand or slime has settled, the greater part of the water is poured off, and the remainder is passed through a filter of calico. The contents of the calico are then scraped on to a prospecting pan, dried, and well mixed, and sampled in the usual way by quartering.

TAILINGS CHARGED INTO VATS.

In sampling tailings as they are being charged into the vats for cyanide treatment, every truck, as it enters the Cyanide Works, is sampled with an iron sampling-rod—a hollow rod, which brings away a core of sand after being pushed down into the centre of the truck. These samples so taken are shaken into a box placed beside each vat, and when the vat is full the contents of its sample box are thoroughly mixed up and quartered down by successive operations till the sample is reduced to about 2 lbs. weight.

SPENT TAILINGS.

Spent tailings or residues are dealt with exactly in the same way; the trucks, as they leave the Works for the residue dump, being sampled with the rod.

OLD TAILINGS HEAPS.

Old tailings heaps may be sampled either by the use of a sampling-rod, at points marked by the intersections of equi-distant lines, drawn longitudinally and transversely across the surface of the heap; or by digging trenches across the heap, and taking every tenth or twentieth shovelful.

SAMPLING AND ASSAYING OF BULLION.

See page 164.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

STAFF ARRANGEMENTS

REGISTER OF ASSAY RESULTS.

No samples are to be assayed except those specified in the Rules in the "Register of Samples" (see page 23).

Specimen.

The following is a usual specimen of such a book:—

[illegible]

It is from this book that a Certificate of Assay can be given for the monthly results.

This Certificate should contain, in a condensed form, the information given in the "Register of Assay Results," and from this the assays in the Gold Account are obtained.

Specimen.

The following is the usual pattern, and a copy of which is to be sent to the Head Office:—

Assay Certificate for Month of.....											
DATE.		No. of Sample.	Mark of Sample.	SOURCE OF SAMPLE.	GOLD per Ton of 2000 Lbs.			SILVER per Ton of 2000 Lbs.			DESCRIPTION & REMARKS.
					Ozs.	Dwts.	Grs.	Ozs.	Dwts.	Grs.	
NOTE.—In case of Bullion the weight of it must be given.											

FOR GOLD MINING BUSINESS.

Responsible Officer.—The Assayer.

Entries for this Book.

Entries are only to be made of assays of the samples previously entered in the Register of Samples Received for Assay.

STAFF ARRANGEMENTS

DIAGRAM OF EXPENDITURE AND RESULTS,

SHEWING THE RELATION BETWEEN THE TECHNICAL DEPARTMENTS AS REGARDS RESULTS AND THE BUSINESS STAFF AS REGARDS EXPENDITURE IN THE GENERAL ORGANIZATION.

The GENERAL MANAGER, as illustrated in the diagram opposite, controls the expenditure on the one hand, generally indicated by blue lines, and through the Assayer, the extraction of Gold on the other hand, generally indicated by red lines.

The COMMERCIAL SUPERINTENDENT specially controls the expenditure by checking the outgoing of Wages and Stores to the various departmental accounts. This he does through the Wages and Stores Clerks. Where the amount is carried to Development or Erection of New Works Account, the thin black lines indicate this check; the thin blue lines where carried to Working Account.

The ASSAYER tests the efficiency of the process by taking check assays at the various points of the operation. The thin red lines indicate this check.

The ACCOUNTANT deals with the Accounts and Book-keeping Records of Expenditure as furnished to him by the Wages and Stores Clerks.

The EXPENDITURE on account of WORKING the Mines and Gold extraction processes is carried to the various departments in thick blue lines.

The EXPENDITURE on account of DEVELOPMENT OF THE MINE or of ERECTION OF NEW WORKS is carried to those accounts in thick black lines.

The VARIOUS DEPARTMENTS of Mining, Milling, and Cyaniding are managed by the various Superintendents as indicated, and the results of their technical work, being shewn in the departmental reports, consist briefly of the mining the ore, and the extraction of Gold from it.

LOSS IN PROCESS AND LOSS IN TAILINGS OR RESIDUES, refer to that portion of the Gold which has not been saved in the process. A specimen of the loss will be found in the Gold Statement on page 165. One of the great aims of the Technical Departments should be to minimize this loss.

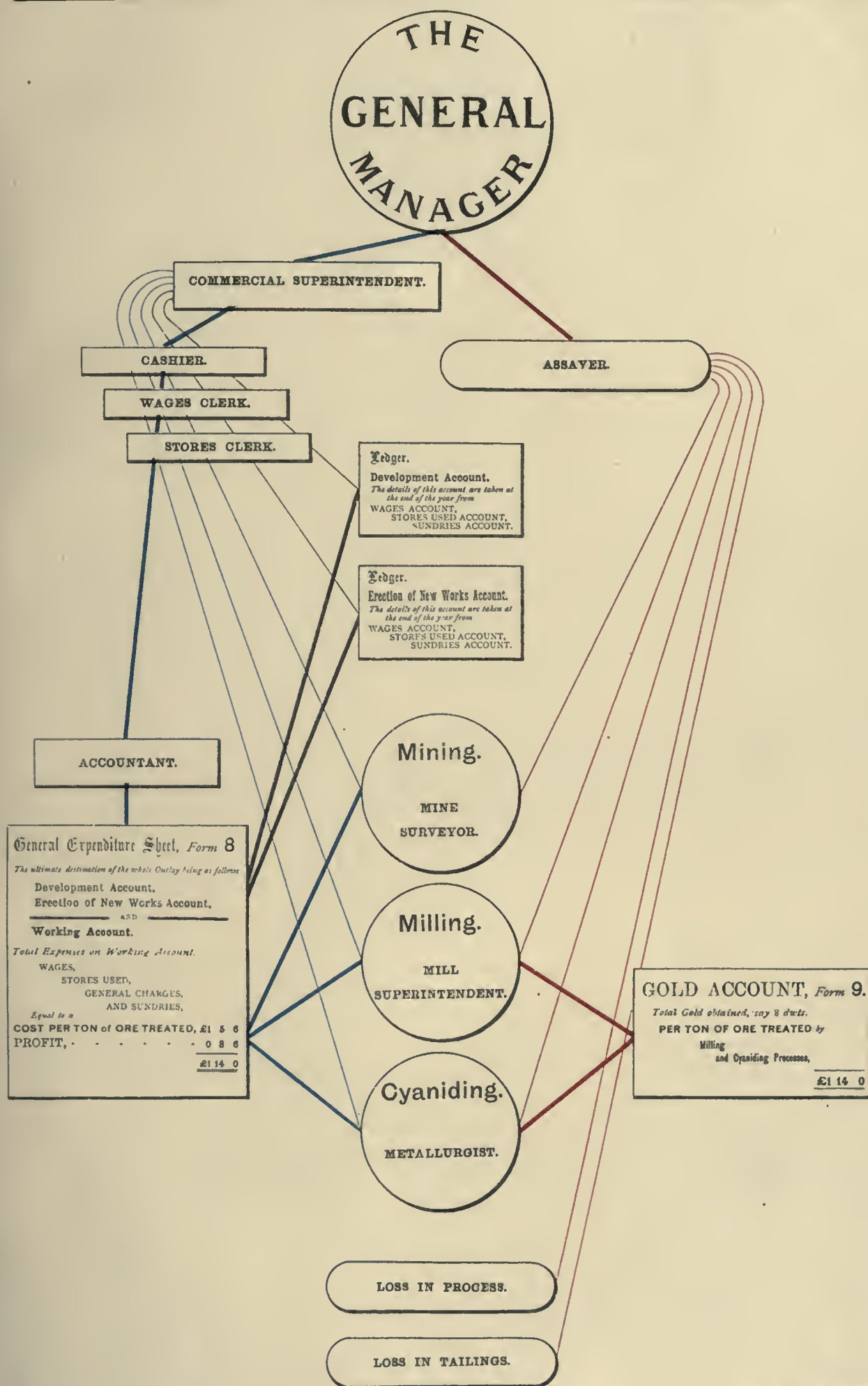
Economical working in general will largely depend upon harmonious co-operation between the Departmental Managers on the one hand, and the Commercial Superintendent on the other.

It will be observed that, under the control of the General Manager, the General Expenditure Sheet (No. 8) is left in the hands of the Commercial Superintendent, and he must account for the expenditure distributed to the different departments according to the lines laid down in this book, generally indicated by the blue and black lines and figures in the diagram. He also will receive and credit the Gold in like manner in the Gold Account or Statement, indicated in red lines in the diagram.

By way of example, the cost per ton of treating an Ore is shewn in the diagram under the heading of Expenditure Sheet, and the fine Gold produced, calculated in sterling, is shewn in the Gold Account or Statement; a balance is struck between the two, which leaves an apparent profit of 8/6 per ton.

The details of the purchases and the distribution of the Stores, and the allocation of Wages, might also have been shewn in a diagrammatic form, but with the diagram opposite as a specimen, this can easily be done if desired.

FOR GOLD MINING BUSINESS.



RULES AND SPECIMENS

OF

THE DEPARTMENTAL REPORTS OR RECORDS.

Introduction.

THE general Staff Arrangements having been set out in the previous pages, it is now proposed to deal with their application to the Departments.

It will be observed in the following specimen set of Reports that rules to guide the responsible officer of the department in making his report precede the specimens, most of which have been filled in by way of example. It is intended that these rules should be inserted at the beginning of each book used, so as to be constantly before the officers for their direction. Many of the rules are the same in one department as in another, but it is better that the instructions for each several department should be set out in full, so that they may be available for the officer of each department without reference to the rules of any other.

The Forms **A** to **E** have reference to clearly defined working departments, but the Form **F** is for Power which has to be distributed among the other departments which use it. Form **G** is for Repairs of Plant, where a specially equipped Maintenance Department exists, and the costs have to be distributed, so that the repairs of each department are shewn separately.

The Departmental or Technical Reports, which are the equivalent of the Log Books kept by Ships' Officers and Engineers at sea, should shew the work done by the department, the cost of which is finally charged to that department in the General Expenditure Sheet (No. 8), under the headings of Cash and Stores.

These Departmental Reports should be made outside of the Counting-House, and as far as possible on the ground where the work is carried on. Where one department has work carried on at widely separated points, a separate record should be kept at each.

The specimens of the Departmental Reports shewn have been taken from different mines and from various localities, and are therefore to be looked at simply as examples of the method of filling in; and no scientific or practical deduction as to methods of working should be drawn from the circumstances and limited figures therein given. This book is not written with the purpose of shewing how the work should be done, but of shewing how the work done should be recorded, and of shewing how the expenditure may be checked by proper accounts, and the processes by the sampling and assaying.

The diagram given on page 36 shews the tests made of the Gold in the different departments, and the results collected together in the Gold Statement (No. 9).

The Specimen Forms submitted include most of the general forms required. Some, such as for Surface Prospecting, are only applicable and useful to Companies with extensive territorial rights; that for Diamond Drill Boring only for cases where deep-lying interstratified deposits are looked for.

Surface Prospecting.

Form A.

Responsible Officer.—The Mine Surveyor or the Prospector.

Definition of Work covered by this Report.

SURFACE PROSPECTING will include only that general survey of the locality, accompanied by costeening, tracing and sampling outcrops, sinking shallow trial pits, and such like work, which usually precede the actual testing of definite points by underground prospecting.

This Form is designedly left as a sheet of blank paper, because the earlier stages of work will be difficult to tabulate. The first business of a Prospector is to find the position of the reef, and it is this and other collateral information which is sought for in this report.

Entries for this Book.

These should come from the Prospector's Note Book and the Foreman's Order Book carried by the Prospector.

Entries in this Book should shew the following:—

The total number of men, though not the cash amount, employed during the month by this department.

This should be compared with the number of men charged in the Wages Sheet to this department.

The quantity of important Stores used, though not the cash amount.

This should be compared with the quantity of important Stores charged to this department in the Stores Used Sheet.

Amount of work done which is charged for in the Expenditure Sheet, under the head of **Prospecting—Surface.**

Samples.

Suggestions as to sampling surface exposures are given at page 25. The prospector should mention in his reports all mineralogical specimens brought into the office for identification, or samples taken for assaying, and the place whence these are taken.

Specimen.

See pages 41 and 42.

Copies for the Head Office.

A copy of the Surface Prospecting Report Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMEN of **A** Surface Prospecting *REPORT*

WORK DONE *for the Month of*

FOR GOLD MINING BUSINESS.

.....18

Date,.....

.....Prospector,
(or Mine Surveyor.)
G

Underground Prospecting.

The following Forms are provided for the different divisions of work:—

- FORM **Ba.**—FOR TRIAL ADITS, SHAFTS, CROSSCUTS, &c.
,, **Bb.**—FOR DIAMOND DRILL BORING.

THE REPORT BOOK FOR TRIAL ADITS, SHAFTS, CROSSCUTS, &c.

Form Ba.

The rules for keeping Form Ba are almost identical with those in Form C (see page 47), the Responsible Officer being the Mine Surveyor. For specimen, see page 49.

Definition of Work covered by this Report.

UNDERGROUND PROSPECTING will include boring (which will generally be placed under a sub-head of its own), sinking trial shafts, driving trial crosscuts and trial levels, trial adits, and so forth, as distinguished from permanent shafts, levels, &c., intended subsequently to be used in actual mining.

As some work done for prospecting purposes may ultimately be utilized for the later stages, it may not always be easy to divide this head from development. In some cases the most convenient demarcation may be a time limit,—that is, all work not clearly coming under permanent development up to a certain date may be classified under the present head; and all work done after the fixed date, when the trial stage may be considered over and the Mine proved in that section or part, may be classed as development.

Amount of work done is charged for in the Expenditure Sheet (No. 8), under the head of **Prospecting**—*Underground*.

The following are the rules for keeping

THE REPORT BOOK FOR DIAMOND DRILL BORING:—

Form Bb.

Responsible Officer.—Mine Surveyor, but Form **Bb** is to be written up by the Diamond Drilling Foreman.

Entries for this Book.

The entries of work done should be made in this book direct when the facts are ascertained. They should not be filtered through another book, and then written clean into this book, as such a course is apt to create errors, and would only entail unnecessary work.

Entries in this Book should shew the following:—

The total number of men employed during the month by this department, though not the cash amount of their wages.

This should be compared with the number of men charged in the Wages Sheet to this department.

The quantity of important Stores used, though not the cash amount, as indicated below:—

- SPARE BORING RODS.
- CROWNS.
- DIAMONDS.
- ANY OTHER IMPORTANT STORES.

FOR GOLD MINING BUSINESS.

These pass through the Store Accounts, in common with all other Stores. These items, however, are of so much importance to the Diamond Drill Boring Department, that the Foreman should always be cognizant of what is being consumed and what is on hand.

Amount of work done, which is charged for in the Expenditure Sheet (No. 8), under the head of **Prospecting**—*Underground*.

Samples of Ore.

Samples of every description of rock passed through should be sent to the Assay Office for mineralogical identification or for assaying, and the point at which these samples are taken should be recorded in the column provided for the purpose.

Specimen.

Form B_b.—A specimen of Diamond Drill Boring Form is given on pages 45 and 46.

Copies for the Head Office.

A copy of the Diamond Drill Boring Report Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of Bb Diamond Drilling REPORT

WORK DONE for the

Number of Men Employed.		No. of Hours Boring.		Date.		Depth Bored.		Total Depth.		Core obtained.		Nature of Strata.
NATIVES.	OTHERS.					Ft.	In.	Ft.	In.	Ft.	In.	
				Brought forward,				40	5			
				June	8	2	10	43	3	2	0	Chert, jointy & broken
				„	9	2	8	45	11	2	4	Shale, very jointy.
						2	7	48	6	2	6	Blue Limestone.
				„	10	1	2	49	8	1	2	Ditto.
						3	7	53	3			Blue Slate.
				„	11	5	0	58	3			Ditto.
				„	12	3	10	62	1	7	6	Ditto.
				„	13			62	1			
						etc.,		etc.				

FOR GOLD MINING BUSINESS.

Month of June, 1896.

Size of Crown in use.	REMARKS.	Sample Taken.
8"	<p>Boiler steamed badly to-day.</p> <p>Ground still very jointy, and bores slowly.</p> <p>Last the core in drawing; made spring ready.</p> <p>Put down, but could only get over 6" of the core.</p> <p>Had trouble to get over the core. Bored 5 feet, and in drawing lost the core again.</p> <p>Did not get down over the core until 2.30 p.m. Bored 3 ft. 10 in.; drew, and got 7 ft. 6 in. of core.</p> <p>Took slide valve out of engine, and altered the cut-off. Fixed water pipe from pump to feed barrel.</p>	
	Date,.....Diamond Driller.	
	Date,.....Mine Surveyor.	

Mining and Transport.

Form C.

Responsible Officers.

This book is to be written up by the Mine Surveyor or his Assistant.

Definition of Work covered by this Report.

DEVELOPMENT will include all work intended for permanent use in the mining of ore, such as winding, pumping, and ventilating shafts, main adits, levels, drives, and crosscuts, designed for the blocking out, stoping, and conveyance of ore to the surface.

It will usually be convenient to keep "Shafts" as a separate sub-head of this heading.

MINING will include principally the stoping of ore, timbering, filling stopes with waste, underground sorting; and also the execution of any drives, crosscuts, winzes, upraises, &c., necessary for stoping purposes, and not included in the previously completed development. It will also include the tramming of ore to the foot of winding shaft or to the exit of adits, when not carried on by mechanical appliances.

UNDERGROUND TRANSPORT.—This head will include the cost of haulage, by mechanical means, from the loading of ore into trucks to its delivery at the foot of shaft or at the mouth of adit, as the case may be.

MECHANICAL HAULAGE AND TRANSPORT are dealt with under Power Forms F.

TRANSPORT TO MILL will include the cost of conveyance of ore from bins or dumps at pit head or adit mouth, or in trucks direct from same to the ore bins at the mill.

Entries for this Book.

The entries should be made in this book, as far as possible, when the facts are ascertained. They should not be filtered through another book and then written clean into this book, as such a course is apt to create errors, and would certainly create useless work.

In large works, in the case of the Foremen of the different parts of the work contributing to the information, it may be necessary to take such information from the Foremen's Note Books under the full heads, in a systematic manner, and the responsible officer should at once write it into this book.

Entries in this Book should shew the following:—

The total number of men employed during the month by this department, though not the cash amount of their wages. The number of men should be shewn as employed in the different sections and levels of the Mine in *Sinking, Driving, Stopping, &c.*

This should be compared with the number of men charged in the Wages Sheet to this department.

The quantity of important Stores used, though not the cash amount, as indicated below:—

DYNAMITE.

DRILL STEEL.

ANY OTHER IMPORTANT STORES.

FOR GOLD MINING BUSINESS.

The amount of work which is charged for in the Expenditure Sheet (No. 8), page 143 under the following heads :—

Development—

Sinking.

Driving Levels.

Mining—

Sinking.

Driving Levels.

Stoping.

Tramming and Haulage to Surface.

Transport to Mill—

Renewals or Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month that have not been reported on Form G, so that in the Expenditure Sheet they may be charged to—

MAINTENANCE OF PLANT.

Mining—

Pumping Gear.

Rock Drills and Compressors.

Haulage—

Hauling Gear.

Underground Tramway.

Main Shaft.

Houses over Hauling Engines.

Transport—

Maintenance of Tramways.

Stock of Ore to be Checked Monthly by this Book.

The following is a sketch of the way the Stock should be written into the Remarks column every month :—

Stock of Ore brought forward from last month,	...	...	tons.
Output of Ore mined during this month,	...	...	"

Ore delivered to Mill or Dry Crushers during month,	...		"

Stock of Ore at Mine carried forward to next month,	...	=====	"

NOTE.—The above Stock should remain in the Books at the Credit of the Working Account until it is delivered for treatment.

Reserves of Ore.

Notes should also be made, from time to time, giving estimate of amount of Ore in sight. At end of each financial year the Reserves should be carefully measured up and certified by a competent Surveyor.

Samples of Ore.

Samples of all ore mined are to be sent to the Assay Office daily, weekly, or monthly, as arranged. For suggestions as to method of taking samples, see page 30. It should be clearly stated whether the samples are taken from the working faces or from the ore brought to grass.

Specimen.

See pages 49 and 50.

Copies for the Head Office.

A copy of the Mining Report Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of C Mining and Ore Transport REPORT

Mine. WORK DONE for the Month of

Number of Men Employed.		Number of Shaft.	No. of Drive.	DISTANCE DRIVEN.		Direction.	Formation.	Dip.	Thickness of Reef.	Output, Tons.
NATIVES.	OTHERS.			During Month.	Total to Date.					
19	3	MINING.								
		Drive No. 4	Feet. 54	Feet. 700	S.W.	Limestone	7° West	Inches. 33	103.	
		„ C.c. to left at 355'	31	68	S.E.	„	„	16		
		„ „ 407'	23	46	„	„	„	15		
		„ „ 454'	9	33	„	„	„	15		
		No. 16	43	533	S.W.	„	„	28		
		No. 16a	19	266	N.E.	„	„	27		
		No. 4a	57	328	„	„	„	15		
		Slope off 4a	36	46	S.W.	„	„	18		
		No. 13a	43	124	N.E.	„	„	6		
STOPING.										
Here follow the details of Stoping, giving numbers of										
TRAMMING AND HAULAGE TO SURFACE.										
Here follow the details of Trammimg, giving number										
TRANSPORT TO MILL.										
Here follow the details of Transport to Mill, giving										

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FOR GOLD MINING BUSINESS.

18

Assay value per Ton.	Pannings.	REMARKS.
		Double shift. Holed through on Drive No. 4a.
Dwts. 120		Double shift. Through on 1ba. Do. Do. 1b. Inferior reef.
stopes worked, number of men employed, and tons extracted.		
of men employed and tons of ore dealt with.		
number of men employed and tons of ore transported to Mill.		
<div>Note. This example is taken from workings in an approximately horizontal seam, such as is worked in some districts in the Transvaal. Where sinking is carried on the column headed "Distance Driven" can have the words "Feet Sunk" added.</div>		
Date,.....		
.....Mine Surveyor.		

Milling and Crushing.

Form D.

Responsible Officer.

This book is to be written up by the Mill Superintendent.

Definition of Work covered by this Report.

MILLING AND CRUSHING will include the treatment of the ore from the time it leaves the ore bins above the mills to the time the tailings leave the mill, or the crushed ore (in direct cyaniding) leaves the dry crushers, also the cost of retorting amalgam.

A separate Form of same pattern may be used for Milling and one for Crushing.

Entries for this Book.

The entries should be made in this book, day by day, when the facts are ascertained. They should not be filtered through another book, and then written clean into this book, as such a course is apt to create errors, and would certainly create useless work.

In large works where the Foremen of the different parts of the work contribute to the information, it may be necessary to take such information from the Foremen's Note Books, under the full heads, in a systematic manner, and the responsible officer should write it at once into this book.

Entries in this Book should shew the following:—

The total number of men, though not the cash amount, employed during the month by this department.

This should be compared with the number of men charged in the Wages Sheet to this department.

The quantity of important Stores used, though not the cash amount, as indicated below:—

MERCURY.

SPARE PARTS OF MILL.

SHOES.

DIES.

DRIVING BELTS.

ANY OTHER IMPORTANT STORES.

The amount of work done which is charged for in the Expenditure Sheet (No. 8), page 143, under the head of **Milling and Crushing**.

Renewals and Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month that have not been reported on Form G, so that in the Expenditure Sheet they may be charged to—

MAINTENANCE OF PLANT.

Mills, Rock-breakers, &c.

Houses over Mills.

FOR GOLD MINING BUSINESS.

Mill Stock of Ore to be checked monthly by this book.

The following is a sketch of the way the Stock should be written into the Remarks column every month:—

Stock of Ore in Bin, brought forward from last month,		tons.
Ore received from Mine during this month, 	_____	"

Ore Milled or Crushed during this month, 	_____	"
--	-------	---

NOTE.—*This is the figure taken for the Gold Statement, No. 9.*

Stock of Ore in Bin, carried forward to next month, ... _____	"
---	---

NOTE.—*The above Stock, together with the Stock of Ore at the Mine, remains in the Books at the Credit of Working Account until it is delivered for treatment.*

Samples to be taken by Assayer.

Samples of all Ore filled into the Mill should be taken by the Assayer daily, weekly, or monthly, as may be arranged by the management (see page 30).

Specimen.

See pages 53 and 54.

Copies for the Head Office.

A copy of the Milling and Crushing Report Book or Books (if kept separate) should be forwarded monthly to the Head Office on the Forms provided for the purpose.

SPECIMEN of **D** Milling and Crushing REPORT

WORK DONE *for the*

Number of Men Employed.		DATE.	Number of Stamps Running.	TIME.		DROP OF STAMPS.		CAUSE OF STOPPAGE.
				Hours Working.	Hours Stopped.	Height.	No. per Min.	
NATIVES.	OTHERS.	Dec.	1	5	24			
			2	"	24			
			3	"	24			
			4	10	24			
			5	"	19	5		Repairing Driving Belt,
			7	"	24			
			8	5	24			
			9	10	24			
<hr/>								

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FOR GOLD MINING BUSINESS.

Month of December, 1895.

NAME OF ORE MILLED.					Filling Assay.	Weight of Amalgam.	Concentrates.	REMARKS.
Stope No. 1.	Stope No. 2.	Stope No. 3.	Stope No. 9.	Stope No. 10.				
Tons.	Tons.							
8	9							
8	7							
6	8							
11	16							
14	6							
15	15							
4	8							
8	22							
74	91	= 165 tons.				300 ozs.		

Note.

The screen used and height of discharge should be noted once on each sheet, and any change in same should be recorded under "Remarks."

The "Filling" Assays may or may not be given in this sheet. These can be obtained from the Assay Certificate Book.

Any change in the arrangement of the amalgamating tables, blankets, &c., should be carefully recorded under "Remarks."

Where Concentrates bulk largely, a separate Form may be necessary for recording their treatment. For Dry Crushing the headings of the Columns can be suitably altered.

Date,.....

.....Mill Superintendent.

Cyaniding.

Form E.

Responsible Officer.

This book is to be written up by the Metallurgist who has charge of the Extraction Process.

Definition of work covered by this Report.

CYANIDING will include the cost of transporting Tailings from the mill to the vats, or where direct Cyaniding is employed, the transport of the Crushed Ore from the screens to the vats, the treatment there, the recovery of the bullion in bars, and the discharge of residues to the dumps.

TREATMENT OF SLIMES will include (where employed) preparation and conveyance of slimes from the slime pits to the vats, treatment there, recovery of bullion, and discharge of the spent slimes.

Entries for this Book.

The entries should be made in this book when the facts are ascertained. They should not be filtered through another book, and then written clean into this book, as such a course is apt to create errors, and would certainly create useless work.

In large works, in the case of the Foremen of the different parts of the work contributing to the information, it may be necessary to take the information from the Foremen's Note Books, under full heads, in a systematic manner, and the responsible officer should write it at once into this book.

Entries in this Book should shew the following:—

The total number of men, though not the cash amount, employed during the month by this department.

This should be compared with the number of men charged in the Wages Sheet to this department.

The quantity of important Stores used, though not the cash amount, such as—

CYANIDE.

ZINC FOR PRECIPITATION.

ANY OTHER IMPORTANT STORES.

The amount of work which is charged for in the Expenditure Sheet under the head of **Cyaniding**.

Renewals or Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month, so that the expenditure charges under the following heads will be approximately explained thereby:—

MAINTENANCE OF PLANT.

Cyanide Plant.

Houses over Cyanide Plant.

FOR GOLD MINING BUSINESS.

Stock of Tailings to be checked monthly by this book.

In the event of Tailings being carried over from one month to another, a jotting of same should be given in the space reserved on the left-hand side every month, as follows:—

Stock of Tailings brought forward from last month,	...	tons.
Tailings received from Battery during this month,	...	”

Tailings charged into Vats during this month, ...	...	”

Stock of Tailings carried forward to next month,	...	”
		=====

CONCENTRATES.

No special form has been provided for the treatment of concentrates, but a suitable form should be used for any process adopted.

Samples to be sent to Assay Office.

Samples of all Ore filled into vats, also of the residues and sump solutions, to be sent to the Assay Office daily, or as arranged.

Specimen.

See pages 57 and 58.

Copies for the Head Office.

A copy of the Cyanide Report Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of **E** *Cyaniding REPORT*

WORK DONE *for the Month of*

[illegible]

Power.

The following Forms are provided for the different divisions of power:—

FORM Fa.—STEAM POWER.

„ **Fb.—TRANSMISSION OF ELECTRICAL POWER.**

„ **Fc.—OIL ENGINES.**

No Form is provided for water power, but monthly report should be sent when water power is used. Such report should give information as to the supply of water in the head dam, the rainfall during month, and any other point that influences the power available from this source.

POWER REPORT FOR STEAM.

Form **Fa.**

The design of this Monthly Report is to shew that the **Consumption of Fuel** is kept down to its lowest limit, the most work got out of the **Engine**, and that proper attention has been given by those in charge.

Responsible Officer.—The Mechanical Engineer.

Definition of Work covered by this Report.

MOTIVE POWER will include the distribution of steam power, from the point of generation to the point of application, and will usually be subdivided to the several heads chargeable, as under:—

MINING.

Rock Drills.

Underground Transport or Trammimg.

Haulage to Surface.

Pumping.

MILLING.

CYANIDING.

Entries for this Book.

The Engine Attendant should, every hour, note the particulars required on a slate or board, and the daily summations or averages of these figures should be taken by the Mechanical Engineer and entered in this book.

The daily consumption of fuel should be carefully estimated where it cannot be weighed.

The Engineer should make a special test, say every three months, of the efficiency of the engines and boilers, working out the consumption per indicated horse-power of the engines, and the water evaporated per pound of fuel in the boilers; and space in the Report is provided for these figures.

FOR GOLD MINING BUSINESS.

Entries in this Book should shew the following:—

The total number of men, though not the cash amount, employed directly in working for the following departments:—

Pumping.

Haulage.

Transport to Mill.

Milling.

Any other Department requiring Power.

The quantity of important Stores used, but not the cash amount, as indicated below:—

OIL.

SPARE PARTS.

ANY OTHER STORES.

The fuel passes through the Stores Accounts, in common with all other Stores. The Engineer in charge, however, should always be cognizant of what is consumed and what is on hand.

The Fuel Account, especially, should always be checked in its total debits by the Accountant by reference to this sheet.

Stock of Fuel at the Engine-house should be jotted in the Remarks column monthly, as follows:—

Stock of Fuel brought forward from last month,	...	...	tons.
Quantity added to Stock during this month,	...	...	"
<hr/>			
Total available,	...	...	"
Fuel consumed during this month,	...	...	"
<hr/>			
Stock of Fuel carried forward to next month,	...	...	"

Distribution of Power.

If the power should be distributed between the Pumping, Hauling, and the Mill, or other department, the distribution should be ascertained as nearly as possible, and instructions given accordingly to the Wages Clerk and Stores Clerk, so that they can observe the proper allocation of wages and stores, throughout the year, to the proper departments.

Renewals or Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month that have not been reported on Form G, so that in the Expenditure Sheet (No. 8) they may be charged to—

MAINTENANCE OF PLANT.

Pumping Engines and Boilers.

Hauling Engines and Boilers.

Mill Engines and Boilers.

Specimen.

A specimen of the Form is filled up on pages 61 and 62.

Copies for the Head Office.

A copy of the Power Report Book F_a to be forwarded monthly to the Head Office on the Form provided for the purpose, separate sheets being used for each engine where more than one are in use. Each engine should have a distinguishing number or name.

SPECIMEN of **Fa Steam-Power** *REPORT*

WORK DONE *for the*

[illegible]

FOR GOLD MINING BUSINESS.

Month of May, 1896.

FUEL.

Amount of Fuel used in lbs. per Indicated H.-P.

per hour,

$$\frac{\text{lbs. Fuel used per hour}}{\text{I.H.-P.}} = \text{lbs. Fuel per H.-P. per hour.}$$

WATER.

Amount of Water evaporated in lbs. per pound of Fuel used,

$$\frac{\text{Gallons Water} \times 10 \text{ lbs.}}{\text{lbs. Fuel}} = \text{lbs. Water per 1 lb. Fuel.}$$

GENERAL REMARKS.

Crank-pin heated—stopped for 2 hours.

No. 1 Boiler thrown off for examination.

Coal small and wet.

Date,.....

.....Mechanical Engineer.

NOTE.—The compiler is indebted to MR. J. W. MACFARLANE, Glasgow, for the original draft of this Specimen Form.

POWER REPORT BOOK—ELECTRICAL TRANSMISSION.

Form **Fb.**

Responsible Officer.—The Electrical Engineer.

Definition of Work covered by this Report.

MOTIVE POWER, as set out here, will include the electrical distribution from the point of generation to the point of application, and will usually be subdivided to the several heads as enumerated under Motive Power on page 59.

Entries for this Book.

In case of the Foremen of the different parts of the work contributing to the information, it may be necessary to take such information from the Foremen's Note Books under the full heads. When this course is followed, it should be systematically done, and the Responsible Officer should write it at once into this book.

Entries in this Book should shew:—

The total number of men employed in working the following departments:—

Haulage.

Transport.

Milling.

Electro-depositing.

Other Departments requiring Electrical Power.

The particulars of repairs should form the items charged to the General Expenditure Sheet (No. 8).

The quantity of important Stores used, but not the cash amount, as indicated below:—

SPARE PARTS.

LINESMAN'S STORES.

RUNNING STORES—OILS, BELTS, AND ROPES.

OTHER STORES.

These pass through the Store Accounts in common with all other Stores. These items, however, are of so much importance to the Electrical Department, that the Foreman should always be cognizant of what is being consumed and what is on hand.

Renewals or Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month which have not been reported on Form G, so that in the Expenditure Sheet they may be charged to—

MAINTENANCE OF PLANT.

Dynamos, Motors, and Transformers.

Cable Lines.

Switchboard and Instruments.

FOR GOLD MINING BUSINESS.

Specimen.

See pages 65 and 66.

Copies for the Head Office.

A copy of the Power Report Book **F_b** to be forwarded monthly to the Head Office on the Form provided for the purpose.



SPECIMEN of Fb Electrical Transmission REPORT

WORK DONE *for the*

GENERATORS.

DATE.	Hours Run.	Speed.	Volts.	Amperes.	REMARKS.
<i>Monday, May 1</i>	<i>24</i>	<i>615</i>	<i>610</i>	<i>43.5</i>	<i>Good and Sparkless.</i>
<i>Tuesday, " 2</i>	<i>24</i>	<i>630</i>	<i>610</i>	<i>49.0</i>	<i>Dc.</i>
<i>Wednes., " 3</i>	<i>24</i>	<i>630</i>	<i>605</i>	<i>49.5</i>	<i>Dc. 10 minutes' stoppage to change carbon</i>
<i>Thursday, " 4</i>	<i>22</i>	<i>630</i>	<i>605</i>	<i>50.0</i>	<i>Dc. 2 hours' stoppage on account of stop race choked with debris.</i>
<i>Friday, " 5</i>	<i>24</i>	<i>630</i>	<i>605</i>	<i>44.0</i>	<i>Dc.</i>
<i>Saturday, " 6</i>	<i>12</i>	<i>625</i>	<i>605</i>	<i>50.0</i>	<i>Dc.</i>

FOR GOLD MINING BUSINESS.

Month of May, 1896.

MOTORS.

DATE.	Hours Run.	Speed.	Volts.	Amperes.	Load.	REMARKS.
May 1	24	765	570	43.0	15 stamps	<i>Cool and Sparkless.</i>
" 2	24	765	560	47.5	20 "	<i>Do.</i>
" 3	24	760	555	49.0	20 "	<i>Do.</i>
" 4	22	760	555	49.0	20 "	<i>Do.</i>
" 5	24	777	580	43.5	15 "	<i>Sparkling slightly and cool.</i>
" 6	12	750	540	50.5	20 "	<i>Sparkling and hot.</i>

The Motor ran 130 hours = 118 hours of 20 stump capacity.

Date,

Electrical Engineer.

POWER REPORT BOOK—OIL ENGINE.

Form Fc.

This Monthly Report is to shew that the efficiency of the Engine is being maintained, and that the most work is being got out of it for the minimum amount of oil used.

Responsible Officer.—The Mechanical Engineer.

Definition of Work covered by this Report.

MOTIVE POWER, as set out here, will include the distribution of Power from the point of generation to the point of application, and will usually be subdivided to the several heads as enumerated under Motive Power on page 59.

Entries for this Book.

A log should be kept on a slate or black board by the Engine Attendant, and the daily totals transferred to this book.

Entries in this Book should shew the following:—

The total number of men employed directly in working for the various departments:—

Haulage.
Transport to Mill.
Milling.
Other Departments requiring Power.

The quantity of important Stores used, though not the cash amount:—

SPARE PARTS.
LUBRICANT, &c.

These pass through the Stores Account, in common with all other Stores. The Foreman should always be cognizant of what is being consumed and what is on hand.

Stock of Vaporizing Oil.

The Oil for fuel passes through the Stores Accounts, in common with all other Stores. The Engineer in charge, however, should always be cognizant of what is consumed and what is on hand.

The Oil Account should always be checked in its total debits by the Accountant by reference to this sheet.

Stock of Vaporizing Oil should be noted in the Remarks column monthly, as follows:—

Stock of Oil brought forward from last month,	...	...	gallons.
Quantity added to Stock during month,	...	...	"
Total available,	...	...	"
Consumed during this month,	...	...	"
Stock carried forward to next month,	...	...	"

FOR GOLD MINING BUSINESS.

Renewals or Repairs.

Notes to be made in the Remarks column of any repairs which have been made during the month that have not been reported in Form G, so that in the Expenditure Sheet (No. 8) they may be charged to **MAINTENANCE OF PLANT.**

Specimen.

See pages 69 and 70.

Copies for the Head Office.

A copy of the Power Report Book **F_c** to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of **Fc Oil Engine** *REPORT*

WORK DONE *for the*

ENGINE No. 1, *driving 10 Stamp Mill and Breaker. Size, 25 B.H.P.*

<i>DATE.</i>	<i>Time Run. Hours.</i>	<i>Revolutions. Daily Number.</i>	<i>Consumpt of Vaporizing Oil. Gallons.</i>	<i>Load.</i>
<i>May 1</i>	<i>24</i>	<i>244,080</i>	<i>50</i>	<i>10 Stamps working.</i>
<i>„ 2</i>	<i>24</i>	<i>244,060</i>	<i>49</i>	<i>10 „ „</i>
<i>„ 3</i>	<i>24</i>	<i>244,000</i>	<i>49</i>	<i>10 „ „</i>
<i>„ 4</i>	<i>22</i>	<i>223,600</i>	<i>45</i>	<i>10 „ „</i>
<i>„ 5</i>	<i>24</i>	<i>244,020</i>	<i>49</i>	<i>10 „ „</i>
<i>„ 6</i>	<i>12</i>	<i>122,000</i>	<i>24</i>	<i>10 „ „</i>

69

FOR GOLD MINING BUSINESS.

Month of May, 1896.

Quality and Brand of Oil used, *KNO* Oil—Flash Point, 160°.

REMARKS.

Stopped two hours to repair belt.

Date,.....

.....Mechanical Engineer.

Maintenance of Plant.

Form G.

Responsible Officer.—The Mechanical or Construction Engineer.

The design of this book is to shew the work done by the Mechanical Engineer in repairing or up-keeping the plant, when repairs are carried out by a repairing or maintenance staff of mechanics outside of the individual mechanics or enginemen in charge of the working of the plant.

When repairs are done by the latter they are reported on the other Departmental Working Forms.

Entries for this Book.

To be made from time to time, as the work progresses, from the Time Books and Notes kept by the workmen employed on the jobs.

Entries in this Book should shew the following:—

The total number of men and the jobs on which they were employed during the month by this department.

This should be compared with the number of men charged in the Wages Sheet to this department.

The total sum charged to Wages Account under this department, in men's names, should be equal to the total sum distributed out in the above.

The quantity of important Stores used, though not the cash amount.

The distribution of work done charged in the Expenditure Sheet (No. 8), page 143, should be made as follows, under the head of

MAINTENANCE OF PLANT.

MINING—

Pumping Gear.

Rock Drills and Compressors.

HAULAGE—

Hauling Gear.

Underground Tramway.

Main Shaft.

Houses over Hauling Engines.

TRANSPORT—

Maintenance of Tramways.

MILLING—

Mills, Rock-breakers, &c.

Houses over Mills.

CYANIDING—

Cyanide Plant.

Houses over Cyanide Plant.

OFFICES—

Counting-house, Laboratory, and Drawing Office.

Store Buildings and Stables.

Staff Quarters.

FOR GOLD MINING BUSINESS.

POWER—

Pumping Engines and Boilers.

Hauling Engines and Boilers.

Hydraulic Power, including Mill-race.

Mill Engines and Boilers.

Dynamos, Motors, and Transformers.

Electric Cable Lines.

Switchboards and Instruments.

Oil Engines.

Specimen.

See pages 73 and 74.

Copies for the Head Office.

A copy of the Maintenance of Plant Book **G** to be forwarded monthly to the Head Office in the Form provided for the purpose.

FOR GOLD MINING BUSINESS.

1896.

MECHANICS EMPLOYED.	Material Used.	REMARKS.
1 Mechanic, 5 hours; and 3 Raffies' time, 15 hours,	One new cam.	
2 Mechanics, 6 hours,	3 lbs. packing.	
2 Carpenters, 208 hours, 10 Raffies, 1000 hours,		

Note.

Erection of New Plant.

This Form may be used when New Plant is being erected; but different sheets should be taken, so as to keep separate records.

Date,

Mechanical Engineer.

RULES AND SPECIMENS

OF

THE ACCOUNT BOOKS.

Introduction.

THE Staff Arrangements and the Departmental or Technical Reports of Work done having been treated of in the previous pages, the Accounts and the method of recording and summarizing Departmental Expenditure now remain to be dealt with.

As in the case of the Working Reports, the Specimen Account Books are preceded by notes on the writing up of the books and kindred matters to which they respectively refer. These should be inserted at the beginning of each book in use, so that they may be constantly before the Responsible Officer who has charge of it. In the case of an Assistant Clerk keeping any of these books, his name should be written in the place indicated for this purpose.

The compiler would here remark that the illustrations given are not intended to teach book-keeping, nor in any sense to supersede the intelligent work of Accountants, either professional or otherwise, but are simply practical suggestions for securing some uniform system. The distinctive feature of the system of accounts here recommended is, that the classification of the whole expenditure be restricted to the four accounts—Wages, Stores Issued, General Charges, and Sundries,—leaving the departmental figures to be dealt with in the form of a schedule (see pages 141 and 155).

The Specimen Ledger has been posted up for the month of January only, but in the principal accounts figures for a whole year are given as specimens.

It is recommended that the head of each department should be supplied every month with a statement of the expenditure in his department rated out to shew the cost per ton, foot, or as the case may be. The practice has been found, in the experience of the compiler, productive of good results.

The diagram given on page 36 shews the distribution of the Cash and Stores to the different departments.

Cash Book.

Form 1.

Requisitions for Money.

As the money required for wages, &c., is provided by remittances from the Head Office, ample notice should be given by the Commercial Superintendent of amounts required.

Bank Account is to be kept with the.....
in the name of the Company; and all cheques are to be signed by the General Manager, and countersigned by the Commercial Superintendent or the Accountant.

Bank Certificate of Balance at end of each month is to be sent to Head Office as a Voucher; and a memorandum (when necessary) reconciling the balance as shewn in the Cash Book with the amount in the Bank Certificate.

Responsible Officer.—The Accountant or Cashier.

To be written up by
.....

Entries.

All payments of Accounts or receipts of money are to be duly entered individually in the Cash Book under their proper dates, with the name of the persons to whom paid or of whom received. In the Head Office copy of the Cash Book, the General Charges should be brought in at the end, grouped together in the manner shewn, but with the necessary particulars set out in detail.

All Accounts, and even wages, should, if possible, be paid by cheques.

Duplicate Vouchers are to be obtained in all cases, one of which is to be sent on to Head Office.

Under no circumstances should the Cash Book be kept open beyond the proper closing date in order to include payments which have not truly been made on or before the last day of each month.

Postings.

To the MINES LEDGER (No. 5):—

The various Debits and Credits throughout the month, together with the totals of the Cash and Bank columns (see pages 117 and 118).

It is intended that all outlays chargeable against Stores should be dealt with through the Purchase Day Book.

Specimen.

See pages 79 and 80.

Copies for the Head Office.

A copy of the Cash Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMEN of Cash Book

Dr.

For the Month of

			Ledger Folio.	Cash.			Bank.	
1895.				£	s.	d.	£	s.
Jan.	1	To BALANCE on hand and in Bank,		76	9	6	643	4
	10	„ JAMES THOMSON,	130	„	19	4		
		„ ROBERT ANDERSON,	130	7	„	„		
	31	„ LONDON OFFICE ACCOUNT—						
		<i>Draft, dated</i>	118				1000	„
		„ BANK ACCOUNT— <i>withdrawn from Bank,</i>		750	„	„		
				£834	8	10	£1643	4

TOTAL DEBITS for Month—

Cash Account,	£757 19 4	117
Bank Account,	<u>1000 „ „</u>	117

FOR GOLD MINING BUSINESS.

January, 1895.

Cr.

			Voucher No.	Ledger Folio.	Cash.			Bank.		
					£	s.	d.	£	s.	d.
1895. Jan.	5	By JAMES WHITE,	53	129	1	4	11			
"	6	" SUNDRY WORKMEN FOR WAGES—								
		Balance for December,		125	232	1	6			
"	17	" JOHN BLACK & CO.,	54	129				104	"	"
"	20	" THOMAS BROWN,	55	129				15	"	"
"	31	" PERKINS & WEBB,	56	129	100	6	"			
"	"	" CASH ACCOUNT—per Contra,						750	"	"
"	"	" SUNDRY WORKMEN FOR WAGES—								
		A/c January,		125	433	2	1			
"	"	" GENERAL CHARGES ACCOUNT—								

TOTAL CREDITS *for Month*—

<i>Cash Account,</i>	£769 16 4	118
----------------------	-----------	-----

<i>Bank Account,</i>	967 6 8	118
----------------------	---------	-----

Wages.

Note.

These will appear Weekly, Fortnightly, or Monthly, according to method of payment.

Date,.....

.....Accountant.

RULES for KEEPING the ACCOUNT BOOKS

Credit or Purchase Day Book.

Form 2.

Responsible Officer.—The Accountant.

To be written up by

Entries.

Purchases of every kind during the month, together with cost of Transport, Insurance, &c., are to be entered in full detail in this book, after having been carefully checked and certified as under:—

1. That the goods are in conformity with the order given (see page 15) as to quantity and price charged. This is the duty of the Accountant.
2. That the quantity received is the same as the quantity invoiced. This should be counted independently by the Stores Clerk before he is shewn the Invoice, and a note of the quantities handed to the Accountant.
3. Quality should be checked by the General Manager or by some one appointed by him.
4. Calculations should all be checked by the Accountant or some one appointed by him.
5. The final passing should be done by the Manager, who has thus the first and last check on all purchases.

The following stamp should be affixed to each Invoice, and the initials filled in as checked:—

Quantity and Price as Ordered, - - -	<i>Initials.</i>
Quantity Received as Invoiced, - - -	
Quality, - - - -	
Calculations, - - -	
Passed by - - - -	

Postings.

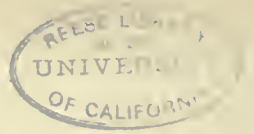
To the MINES LEDGER (No. 5):—

The CREDITS throughout the month to be posted to the credit of the Personal Accounts.

The totals of these items, properly grouped together, give the DEBIT Postings to the General Stores and other Impersonal Accounts to which they belong.

To the STORES LEDGER (No. 7):—

The individual DEBITS for Stores, together with all charges thereon, are also to be posted to the debit of their respective accounts in the Stores Ledger.



FOR GOLD MINING BUSINESS.

Specimen.

See pages 83 and 84.

Copies for the Head Office.

A copy of the Purchase Day Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of Purchase Day Book

For the Month of

General Ledger Folio.	1895. Jan.			Stores Ledger Folio.	£	s.	d.	£	s.
150	3	JAMES WHITE—		137	1	1	11		
		Three Bars Drill Steel, $\frac{3}{4}$ " 0 2 14, at 35/,				3			
		Railway Carriage and Forwarding,						1	4
		General Stores Account,							
150	15	JOHN BLACK & CO.—			104			104	
		One 10" Centres Self-acting Lathe, (give full details,)							
		General Stores Account,							
150	17	THOMAS BROWN—			15			15	
		Mining Ore, as per Contract, at Alpha Mine, 30							
		tons at 10/,							
		Sundries Account,							
142	23	LONDON OFFICE—							
		For Goods shipped from U.K., per s.s. "Glenberg,"							
		as per J. Thomson & Co.'s Invoice.							
		One 12" x 24" Coupled Geared Winding Engine,			620				
		(full details to be entered as given in Supplier's Invoice,)							
		One 22 H.-P. Nominal Steel Cornish Boiler,			233				
		(full details to be entered as given in Supplier's Invoice,)							
					853				
		<u>CHARGES.</u>							
		Freight, £74 2 3							
		Shipping Charges, 8 15 "							
		Inspection, 12 10 "							
		Insurance on £1150 at 10/ per cent., 5 15 "			101	2	3		
		General Stores Account, Engine, £670 " "		137					
		Boiler, 284 2 3						954	2
		Forward,						£1074	7
		83							

FOR GOLD MINING BUSINESS.

January, 1895.

					£	s.	d.	£	s.	d.
				Forward,				1074	7	2
1895.	Jan.	3	PERKINS & WEBB—							
			Transport on Engine and Boiler from Coast to Mine,		100	6	„			
			General Stores Account, Engine, £25 6 „	137						
			Boiler, 75 „ „					100	6	„
			Summary.					£1174	13	2
			General Stores Account, (Debit,)		1159	13	2			
			Sundries Account, (do.,)		15	„	„			
					£1174	13	2			

Note.

Mining Contracts.

It will be observed in the specimen that certain work done under a *Mining Contract* has been entered in this Book. It might be better to enter such in the *Wages Book*; but the one method or the other should be adhered to.

Date,.....

.....Accountant.

Debit or Sales Day Book.

Form 3.

This book is intended only for such occasional Sales as arise in the ordinary course of matters. Where a Store is kept by the Company for the sale of provisions to the public, the Accounts should be kept distinct from the Working Accounts of the Mining and Extraction operations.

It may be here remarked that Gold Companies rarely enter the field of Store-keepers for trading purposes, nor is it recommended. Sometimes, however, when men are working on contract, the Company supply the Stores and charge the men with such, entries for which would, of course, be passed through the Sales Day Book, and provision made by an extra column in the Wages Sheet for deducting the amount from the men's wages.

The principal entry each month, however, is that for the Stores issued to the departments. This might have been put in the Journal alongside the entry for Wages, but there are some advantages in putting it here.

Both the Purchase and Sales Day Books, therefore, stand in close relation to the General Stores Account, thus:—

In the CREDIT OR PURCHASE DAY BOOK are entered all goods coming into the concern.

In the DEBIT OR SALES DAY BOOK are entered all goods going out of Store into use in the operations, and any occasional sales made to employés or neighbours.

The Credit and Debit Day Books (Nos. 2 and 3) thus hold the same place in regard to Stores that the Cash Book (No. 1) holds to Cash.

Whatever other books are used, the record of the incoming and outgoing of Stores is to be rigidly kept; and with regard to the former, it is immaterial whether they are for stock or immediate use, they should never, under any circumstances, be debited direct to a department, but always, in the first place, to the General Stores Account, and the necessary credits given to the latter for all Stores issued.

Responsible Officer.—The Accountant.

To be written up by

.....

Entries.

The Invoices of all sales during the month, are to be entered in this book. Also, for convenience, if the number of entries is small, and to avoid the use of another book, any Rents, Licenses, &c., due by sundry persons are to be entered in this book in full detail.

This book may also be conveniently used for entering the bullion sold to local banks or sent to London.

All sales of goods are to be authorized by the Manager.

FOR GOLD MINING BUSINESS.

Postings.

The reverse here applies to the instructions given in the Purchase Day Book, the individual items throughout the month being posted to the debit of the persons to whom the Stores were sold, or by whom rents or other charges were incurred, and the Stores issued for use in the departments debited to Stores Issued Account. The totals for the month are also, as in the Purchase Day Book, to be summarized and credited to the accounts to which they belong, the postings being therefore as follow:—

To the MINES LEDGER (No. 5):—

The DEBITS throughout the month to be posted to the DEBIT of the Personal Accounts.

The totals of these items, properly grouped together, give the CREDIT Postings to General Stores and other Impersonal Accounts to which they belong.

To the STORES LEDGER (No. 7):—

The individual CREDITS of Stores issued are also to be posted to the CREDIT of their respective accounts in the Stores Ledger. These will be found in the relative summaries of Stores Issued (No. 7a), page 139.

Specimen.

See pages 87 and 88.

Copies for the Head Office.

A copy of the Sales Day Book to be forwarded monthly to the Head Office on the Form provided for the purpose.

SPECIMEN of Sales Day Book.

For the Month of

Ledger Folio.	1895.			Stores Ledger Folio.	£	s.	d.	£	s.	d.
129	Jan.	4	JAMES THOMSON—							
			For 1 bag Lime,	137	„	11	6			
			2 lbs. Wire Nails,		„	„	7			
			1 Flat Chisel,		„	1	5			
			10 Clay Crucibles,	138	„	5	10			
			General Stores Account,					„	19	4
129	„	31	ROBERT ANDERSON—							
			For 1 month's Rent of Store, &c.,							
			to		12	3	„			
			Incidental Receipts Account,					12	3	„
121	„	31	STORES ISSUED ACCOUNT—							
			For Stores issued during month, as							
			per Summary of Stores Issued							
			Sheet, page 148,		343	4	6			
			Working Account, £343 4 6							
			Erection of New							
			Plant Account, „ „ „							
			General Stores Account,					343	4	6
								£356	6	10
			<u>Summary.</u>							
118			General Stores Account, (Credit),		344	3	10			
126			Incidental Receipts Account, (do.),		12	3	„			
					£356	6	10			

FOR GOLD MINING BUSINESS.

January, 1895.

Note.

Profits on Sales of Stores.

In the illustration given no profit has been taken, but any profits made in this way form a credit to Incidental Receipts Account, the net amount only being credited to Stores Account.

Bullion Shipments or Sales.

This book should also be used to record any Sales of Gold to Local Banks or Shipments of Gold to London. In the latter case the ounces only are filled in by way of a memorandum, which may be put after the Summary.

Date,.....

.....Accountant.

Journal.
Form 4.

Responsible Officer.—The Accountant.
To be written up by

Entries.

It is desirable, for many reasons, to restrict, as far as possible, the entries in this book. The wages entry is, of course, the most important of the regular monthly entries; but other entries may arise from time to time. With the exception of these, however, and the closing entries for the year, specimens of which are also given, there is little else which should require journalizing, as the posting of both the DEBITS and CREDITS of the Purchase and Sales Books are made direct from these books, and the departmental figures are all dealt with in the Expenditure or Allocation Schedules.

Specimen.

See pages 91 and 92.

Copies for the Head Office.

A copy of the Journal to be forwarded monthly to the Head Office on the Form provided for the purpose.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMEN of Journal Entries

Specimen of the Entries for the Month of January, 1895.

1895. Jan.				Ledger Folio.	£	s.	d.	£	s.	d.
	31	GENERAL CHARGES ACCOUNT,	DR.	121	65	"	"			
		TO LONDON OFFICE ACCOUNT,		118				65	"	
		For amount advanced to F. Thomson on Account of Travelling Expenses to Mine.								
	31	WAGES ACCOUNT,	DR.	119	563	4	7			
		TO SUNDRY WORKMEN,		126				563	4	
		Wages for month of January, as per Wages Sheet (No. 6)— Working Account, £563 4 7 Erection of New Plant A/c., " " "								
		NOTE (1).—When the work is largely in the hands of a Contractor, the payments to him should be shewn in a separate Ledger Account, in which case the Wages Entry would be as follows:—								
		WAGES ACCOUNT,	DR.		563	4	7			
		TO SUNDRY WORKMEN,						361	19	
		J. WATSON, Contractor,						201	5	
		NOTE (2).—It sometimes happens that Wages appear in the sheets charge- able against Stores for handling charges, and, in some cases, for skilled employes making up certain articles for use. A simple way of dealing with such is to debit the amount direct to Stores A/c., as follows:—								
		WAGES ACCOUNT,	DR.		502	"	1			
		GENERAL STORES ACCOUNT,	DR.		61	4	6			
		(With the necessary subsidiary postings to the Stores Ledger.) TO SUNDRY WORKMEN,						563	4	

FOR GOLD MINING BUSINESS.

Specimen of the Closing Entries for the Year 1895.

1895. Dec.				Ledger Folio.	£	s.	d.	£	s.	d.
31	GENERAL WORKING ACCOUNT,	DR.	123	19,098	13	1				
	TO SUNDRIES—for Expenditure during year ending 31st									
	Dec., 1895, charged against this Account:—									
	WAGES ACCOUNT, see Expenditure Summary, page 156,		120					8,042	4	10
	STORES ISSUED ACCOUNT, „ „		122					8,685	12	2
	GENERAL CHARGES ACCOUNT, „ „		122					2,172	„	5
	SUNDRIES ACCOUNT, „ „		124					198	15	8
„	31 MOVABLE PLANT ACCOUNT,	DR.	119	193	19	„				
	TO GENERAL WORKING ACCOUNT,		124					193	19	„
	For amount of Inventory at 31st Dec., 1895, in excess									
	of Inventory at 31st Dec., 1894.									
„	31 ERECTION OF NEW PLANT ACCOUNT,	DR.	125	3,952	5	11				
	TO SUNDRIES—for Expenditure during year ending 31st									
	Dec., 1895, charged against this Account:—									
	WAGES ACCOUNT, see Expenditure Summary, page 156,		120					1,908	7	8
	STORES ISSUED ACCOUNT, „ „		122					2,043	18	3
31	WORKS, BUILDINGS, AND FIXED PLANT ACCOUNT, DR.	119	3,952	5	11					
	TO ERECTION OF NEW PLANT ACCOUNT,—Amount									
	transferred,		126					3,952	5	11
	The whole amount being, in this case, transferred to the									
	former Account in terms of the Engineer's Report									
	(see page 115).									
	See also instruction as to shewing additions in Annual									
	Inventories (page 100).									
Date,.....										
.....Accountant.										

SPECIMEN of Journal Entries—continued,

Specimen of the Closing Entries for the Year 1895—continued.

Dec.				Ledger Folio.	£	s.	d.	£	s.	d.
Dec.	31	SUNDRIES—	DR.							
		TO LONDON OFFICE ACCOUNT,		118				42	7	9
		UNCLAIMED WAGES ACCOUNT,	Transferred.	127	17	12	9			
		INCIDENTAL RECEIPTS ACCOUNT,	do.,	125	24	15	„			
„	31	LONDON OFFICE ACCOUNT,	DR.	117	18,904	14	1			
		TO GENERAL WORKING ACCOUNT,		124				18,904	14	1
		For Balance at 31st Dec., 1895, transferred.								
„	31	LONDON OFFICE ACCOUNT,	DR.	117	1,182	„	„			
		TO WORKS, BUILDINGS, AND FIXED PLANT ACCOUNT,		120				1,182	„	„
		For Depreciation, at rate of $7\frac{1}{2}$ per cent., on								
		£15,754 16s. 8d.—being Balance at Debit of								
		this Account at 31st December, 1894.								

FOR GOLD MINING BUSINESS.

Date,.....

.....Accountant.

The Mines Ledger.

Form 5.

Responsible Officer.—The Accountant.

To be written up by

Entries.

Only postings from the four books previously referred to, namely:—

- No. 1.—CASH BOOK,
- „ 2.—PURCHASE DAY BOOK,
- „ 3.—SALES DAY BOOK,
- „ 4.—JOURNAL,

should find their way into the Mines Ledger. All transfer entries other than the regular closing entries should be avoided as far as possible.

List of Accounts to be opened and the order to be observed.

London or Head Office Account.

Bank Account.

Cash Account.

General Stores Account.

Works, Buildings, and Fixed Plant Account.

Movable Plant Account.

Live Stock Account.

Wages Account.

Stores Issued or Used Account.

General Charges Account.

Sundries Account.

General Working Account.

Erection of New Plant Account.

Sundry Workmen Account.

Unclaimed Wages Account.

Incidental Receipts Account.

**Personal Accounts, as required in separate section
of the book.**

Notes

On the respective Accounts will be found on pages 97 to 116.

Ledger Balances.

A list of Ledger Balances to be furnished to Head Office monthly, or as periodically arranged.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

RULES for KEEPING the ACCOUNT BOOKS

London or Head Office Account.

Entries.

The CREDITS would consist chiefly of remittances and store shipments. The principal DEBITS would arise at the close of the year.

Specimen.

See page 117.

Note.

The "**Mines Account**" kept in the Head Office Ledger should be exactly the reverse of the "**Head Office Account**" kept in the Mines Ledger; but there are often, of course, items of Cash and Stores in transit to be reckoned in adjusting the two accounts.

As all the Working Accounts in the Mines Books (Wages, Stores Issued, &c.) are closed off at the end of the year to the London Office Account, the net balance remaining at credit of latter, say on 1st January of any year, should represent simply the various assets at the Mine on that date (excluding, of course, the Mines Property itself, which is a Head Office Account), less the liabilities, if any.

FOR GOLD MINING BUSINESS.

Bank Account.

Entries.

The monthly totals of cash paid into Bank and cash withdrawn from Bank, to be posted to Dr. and Cr. of this Account, and the balance agreed with the Bank column of the Cash Book from which the postings are taken in the manner shewn.

Specimen.

See page 117.

RULES for KEEPING the ACCOUNT BOOKS

General Stores Account.

Entries.

These come almost entirely from the

PURCHASE DAY BOOK AND
SALES DAY BOOK;

in which case the DEBIT ENTRIES consist of the monthly totals of Stores purchased, as per Purchase Day Book.

The CREDIT ENTRIES consist of the monthly totals of Stores issued and sold, as per Sales Day Book.

Occasional Entries, however, arise in the Cash Book and Journal.

The account itself must, of course, be kept in exact agreement with the Stores Ledger; the latter being simply a series of the respective "Store" accounts, which, in the aggregate, correspond to the above account. Care must be taken, therefore, that every posting, whether Debit or Credit to the above account, must also have a subsidiary or duplicate posting to some account in the Stores Ledger.

INVENTORIES—GOODS IN STORE.

Inventories of all stores on hand should be made up at least once in every year. These should be verified, as far as possible, by the Manager and Commercial Superintendent, and countersigned by them. The balance at Debit of this account, and also the Stores Ledger Balances, should be brought into agreement therewith.

The "Stores Used" to be charged out at cost price, or as near to it as possible, but any differences arising between the Stores Ledger Balances and the Inventories should be adjusted at stocktaking, and advised to the Head Office.

In no case should the values adopted in the Inventories be made to agree with the Stores Ledger. The latter should be corrected as required; that is to say, presuming that at stocktaking it is discovered that an error has been made during the year, either in the quantity issued or in the price charged, the stock at the end of the year is to be impartially valued as it stands, at cost or under, if necessary, and an adjusting Journal Entry made to correct the error which has occurred, the proper department being duly debited or credited with the amount.

INVENTORIES—GOODS IN TRANSIT.

Any return of this kind should give date of the Head Office advice, or colonial suppliers' advice, from which the items are taken, and such other particulars as will enable the "transit" or shipment from London, &c., to be readily identified.

Specimen.

See page 117.

Works, Buildings, and Fixed Plant Account.

Entries.

From the JOURNAL.—As the additions to these are taken from the Erection of New Plant Account, there should be, as a rule, only two entries yearly affecting this account :—viz.,

1. Transfer of approved amount from Erection of New Plant Account.
2. Amount written off for depreciation, which, in the yearly inventories, should be shewn in a separate column.

From the SALES DAY BOOK.—It sometimes happens that a sale of a piece of machinery is made to a neighbouring Company, which would necessitate an entry being made in the Sales Day Book, debiting the purchaser and crediting this account with the value obtained. The difference between the realized value and the book value should be transferred to Head Office Account.

INVENTORY.

It is important here, with regard both to uniformity and comparison of Inventories of plant, that the particular arrangement or classification adopted in the accounts should be strictly adhered to year by year. These Inventories should be made up in columns, shewing (a) Value at previous stocktaking, (b) Additions during year, (c) Depreciation, (d) Present value.

Specimen.

See page 119.

RULES for KEEPING the ACCOUNT BOOKS

Movable Plant Account.

Entries.

From the SALES DAY BOOK.—When a property (or mine) is being equipped with movable plant—such as picks, shovels, hammers, &c., &c., and office and dwelling-house furnishing—the articles so issued should be debited, at the outset, to Movable Plant Account.

Should any article become worn out during the year, and require to be replaced, the new article issued from Store in its place must be charged against its proper department in the General Working Account, and not to Movable Plant Account.

By this system Movable Plant Account in the Ledger is not altered throughout the year; any variations being adjusted yearly when the Inventory is made up.

Presuming, however, that during the year work was begun on a new section or department, necessitating the issue of additional tools and sundry movable plant, these items would be debited to Movable Plant Account, as they would constitute a real addition to the stock of movable plant, in contradistinction to a renewal of something that had already been debited to movable plant, but had become worn out.

INVENTORY.

At the end of the financial year an Inventory should be taken of the movable plant (see remarks on previous page as to classification), the various items in use on the property being carefully valued according to their condition, and the whole certified by the Manager. The difference between the total valuation and the amount standing at the debit of movable plant in the Ledger will represent the amount which should be written off or credited to Working Account, and apportioned to the departments to which it is chargeable.

Specimen.

See page 119.

Live Stock Account.

INVENTORY.

An Inventory of live stock should be made up at the end of each financial year.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

RULES for KEEPING the ACCOUNT BOOKS

Wages Account.

Entries.

DEBIT ENTRIES.—The total amount of Wages earned, as per pay sheet, for which credit is given to Sundry Workmen.

CREDIT ENTRIES.—These consist simply of transfers to the

**General Working Account or
Erection of Plant Account,
Movable Plant Account,
Live Stock Account,**

as the case may be, and should be left till the end of the year, when the whole can be transferred in one entry.

With the view of getting always the Wages earned into the month to which they are properly chargeable, a Journal Entry is made debiting the Wages Account and crediting Sundry Workmen, the actual payments being then debited to the latter account.

It is recommended that payments should be limited to a particular pay day.

In the case of particular contracts it may be advisable to open an account for the contractor, see specimen entry on page 91 in the Journal.

Where also any part of the wages is chargeable against General Stores Account, for handling charges, &c., it should be split up as in the Journal Entry shewn.

Specimens.

See page 119.

FOR GOLD MINING BUSINESS.

Stores Issued or Stores Used Account.

Entries.

DEBIT ENTRIES.—The monthly totals of Stores used in process, as ordered by the Foremen, and summarized through Form No. 7a, are posted to the debit of this account from the Sales Book (see page 87).

CREDIT ENTRIES.—These consist simply of transfers at the close of the year to the

**General Working Account or
Erection of Plant Account,
Movable Plant Account,
Live Stock Account,**

as the case may be, and should be left till the end of the year, when the whole can be transferred in one entry.

Specimen.

See page 121.



RULES for KEEPING the ACCOUNT BOOKS

General Charges Account.

This account is intended for Salaries and other expenses of the kind indicated below, which should always be classified under sub-headings in the Cash Book or other book in which they occur. Only the totals need be posted to the Ledger Account, but an Abstract should accompany the Head Office Returns monthly or yearly, as required.

Sub-Headings.

**Staff Salaries,
Cablegrams,
Postages and Telegrams,
Government Taxes and Dues,
Rent,
Travelling Expenses,
Legal Expenses,
Medical Expenses,
Gratuities,
Bank Charges,
&c.**

In the General Expenditure Sheet these Charges are, for convenience, given under the heading of Office, Store, &c.

Entries

Arise chiefly in the Cash Book, but may also occur in the Purchase Day Book or Journal.

Specimen.

See page 121.

FOR GOLD MINING BUSINESS.

Sundries Account.

This account, as distinguished from General Charges Account, is intended for such exceptional items of expenditure as do not properly come under any of the other three heads of Wages, Stores Issued, and General Charges, as, for instance, work done by contractors, who would be credited through the Purchase Day Book. Such expenditure would be debited in the Ledger to Sundries Account, and would appear in the "Sundries" column of the General Expenditure Sheet opposite its proper Department.

In like manner, the charge for Native Passes would be debited to Sundries Account, and credited to the Mining Commissioner through the Purchase Day Book.

Specimen.

See page 123.

RULES for KEEPING the ACCOUNT BOOKS

General Working Account.

Entries.

The principal, and almost the only entries in this Account, are those arising at the end of the year from the transfer of the four General Expenditure Accounts—Wages, Stores Issued, General Charges, and Sundries, and the closing of the Account by transfer to the Head Office Account.

INVENTORY.

An Inventory of the Stock of Ore on hand lying either at the Dump at the Mine, or at the Bins at the Rock Breakers, and not yet delivered for treatment, should be made out at the end of the year, the Ore to be valued strictly at cost of mining, with cost of delivery at the Bins included, if it has been delivered there, provided always that this cost can be realized in treatment. This amount would be credited to General Working Account, and carried forward as a debit to next year in the manner shewn on page 123.

Specimen.

See page 123.

Bullion Account.

Any local sales of Bullion would form a credit to this account, the debtors being the Local Bank or Mint. The value of Bullion on hand at close of year would form a credit to this account, and be carried forward to next year's account as a stock on hand.

Arrangements should be made to have the plates cleaned up and scraped at the close of the year, so as to bring all the Gold obtained into the year's accounts.

Specimen.

No specimen of this account is given.

FOR GOLD MINING BUSINESS.

Erection of New Plant Account.

Entries.

In the system of book-keeping here recommended the amount expended on new plant (or in any particular department) is shewn only in the Allocation Schedules (see General Expenditure Sheet, Form 8). The entries for this account, therefore, consist simply of transfers at the end of the year from the four Expenditure Accounts, and the transfer of these again to Works, Buildings, and Fixed Plant Account, so far as authorized by the Consulting Engineer.

Specimen.

See page 125.

RULES for KEEPING the ACCOUNT BOOKS

Unclaimed Wages Account.

Entries.

When wages have been unclaimed for a length of time, it is well to transfer the amount from Sundry Workmen Account to Unclaimed Wages Account, and advise the Head Office as to same.

Incidental Receipts Account.

Entries.

The CREDITS to this account consist chiefly of *Rents, Fines, Diggers' Licenses, Assaying done for outsiders, &c.*, and would come either from the Sales Day Book or Cash Book.

Sundry Workmen Account.

Entries.

See Wages Account and Unclaimed Wages Account.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

RULES for KEEPING the ACCOUNT BOOKS

SPECIAL YEARLY RETURNS.

These should include, at least, the following:—

Inventories of General Stores in Store, and also in the case of Stores in transit, the particulars as far as known,	see page 99
„ Works, Buildings, and Fixed Plant,	„ 100
„ Movable Plant,	„ 101
„ Live Stock,	„ 101
„ Stock of Ore on hand not delivered to the Mills or Crushers for treatment,	„ 107
Copy of Final Yearly Totals from the Summary of Expenditure Book,	„ 156
Yearly Summary of General Charges,	„ 105

The following points should also be attended to:—

YEARLY RETURNS.

All Accounts and Returns made up at the end of the year should deal with the same figures, and be on the same lines as the Monthly Returns, otherwise it is difficult for the Head Office to agree them. In all cases “Returns,” monthly or otherwise, should be duly dated and signed by the officer responsible for them.

ORDINARY RETURNS.

The Ordinary Returns for the last month of each financial year should never be delayed for the other Special Returns made up then, as the Head Office work is thereby unnecessarily delayed, as also the drafts of the printed accounts for the year.

OUTSTANDING LIABILITIES AT END OF FINANCIAL YEAR.

There is less chance, perhaps, of liabilities for Stores being omitted than for *Skilled Services, Rent, Taxes, Contracts, Claims, &c.*, but care should be taken to include liabilities of every kind, as well as outstanding assets.

On the following pages will be found notes on Development, Redemption of Capital, Depreciation of Plant, and a Form of Engineer's Certificate for Erection of New Plant and Report on Value of Plant in use—all of which should come under consideration at the time of the Yearly Balance.

FOR GOLD MINING BUSINESS.

DEVELOPMENT.

Expenditure under this head is sometimes charged direct to current mining costs; in other cases it is carried to a separate account and held in suspense, to be afterwards gradually written off by a tonnage charge against ore raised.

In any case, only the expenditure under the first three headings on pages 149, 150 should be treated as coming under this designation.

It is sounder policy, wherever reasonably practicable, to avoid such suspense accounts, and to adopt the former plan, as is shewn in the illustrations given herein; but there are cases, such as the deep level mines on the Rand, and in other mines, where a large initial expenditure has to be made on expensive shafts, and in the blocking out of great reserves of ore a year or two ahead. In these cases it is admissible to write off the cost of development by a tonnage charge against ore mined, the rate being fixed from time to time by dividing the balance outstanding as cost of development by the number of tons actually developed.

Great care is necessary in these cases to see that the mine costs are not unduly reduced by an insufficient charge per ton for the redemption of the Development Account.

REDEMPTION OF CAPITAL.

Mining properties differ from ordinary industrial undertakings in this respect, that apart from the ordinary wear and tear of buildings, machinery, and plant which all such enterprises must provide for, a mine is itself a "wasting" property, of which the "corpus" diminishes and eventually disappears.

It is true that there are exceptional cases in which the ore bodies are, in the common phrase, "practically inexhaustible;" but, in a general way, provision must be made for the eventual replacement of the capital employed when the "life" of the mine is exhausted.

What the life of a mine should be estimated at is a matter requiring the best technical advice, and no pains should be spared in arriving at a sound conclusion. In some cases, where claims are bounded by vertical lines, and the reefs dip at considerable angles, a fairly close estimate can be made. When a reef is vertical, or the mining laws allow it to be followed on the dip outside the side lines of the claims, there is more opening for judgment and discretion in deciding the possible depth to which it may be worked.

It is beyond the scope of this work to discuss, in detail, the mode of estimating the period at the end of which the capital should be replaced. This having been determined upon technical advice, prudent management requires that corresponding provision be made out of the profits of the concern for redemption, or, as it is sometimes called, amortization, apart from an ordinary reserve fund, which may be required for other objects.

Theoretically, the proper course is to set aside each year out of the profits such a sum, proportionate to the ore extracted, as will, when the estimated contents of the mine have been exhausted, provide a fund equivalent to the capital expended in the purchase and equipment of same.

DEPRECIATION OF PLANT.

A usual all-round rate of depreciation is $7\frac{1}{2}$ per cent., which, if applied to the original cost, would wipe off the account in about fourteen years, exclusive of any question of interest. If applied to the annually decreasing balance, it would never, of course, be exhausted; but whatever method is adopted, care should be taken that the remaining Book Balance is not lost sight of in charging up any renewal expenditure.

Referring to the life of plant, very often it happens that changes occur in processes and machinery long before they are worn out; and in such cases as these, very much heavier writing off should be made. This, however, cannot be done by any arithmetical plan, but must be specially written off each year.

In addition to the $7\frac{1}{2}$ per cent. which comes off every item, the General Manager or Consulting Engineer should recommend, for the consideration of the Board, every year, any plant which he thinks should have a special depreciation written off it, so that the Board in London may deal with it accordingly.

Sometimes a Depreciation Account is kept for every different machine, so as to be dealt with separately; and there is no doubt that this principle is a good one, and should be adopted where the staff are sufficiently skilled, and careful to follow it up properly.

In adopting an all-round rate for depreciation, the rate must be fixed at a figure that will bear comparison with separate rates of separate classes of machinery.

RULES for KEEPING the ACCOUNT BOOKS

SPECIMEN OF CERTIFIED STATEMENT OF CAPITAL EXPENDITURE for the year ending 31st December, 1895.

BUILDINGS.

OFFICE, STORE, &c.

<i>Laboratory,</i>	...	(see page...of Yearly Summary Bk.,)	£151	7	„
<i>Office and Store,</i>	„	„	204	18	10
<i>Staff Quarters,</i>	...	„	184	13	7
CYANIDE VATS— <i>Foundations, &c.,</i>	„	„	1,613	18	11
					£2,154 18 4

MACHINERY AND FIXED PLANT.

TRAMWAYS,	...	(see page...of Yearly Summary Bk.,)	£555	18	1
CYANIDE PLANT,	...	„	188	10	9
MILLING PLANT,	...	„	132	18	5
POWER— <i>Hydraulic Works,</i>	„	„	920	„	4
					1797 7 7
					£3,952 5 11

ENGINEER'S CERTIFICATE.

I have carefully inspected the additions to Plant and Buildings during the year ending 31st December, 1895, the expenditure on which amounts, as per Erection of New Plant Account, to £3,952 5s. 11d. The whole of this amount, I find, is chargeable against Capital Expenditure, in accordance with the above statement, and I certify that it is fully represented by Buildings, Machinery, and Plant additional to what existed at 31st December, 1894.*

I certify also that, in my opinion, there has been no abnormal depreciation of the Company's property, as per Inventories herewith, during this period, nor any loss, damage, &c., to same. (*Adding, if need be, the words "excepting as follows."*)

Date, 31st January, 1896.

(Signed).....

Consulting Engineer.

* See remarks on previous page as to Renewals.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMENS of Ledger Accounts

Dr.			London Office		
1895.			Folio.		
Dec.	31	To GENERAL WORKING ACCOUNT, as per Journal,	93	£18,904	14
"	31	" WORKS, BUILDINGS, and FIXED PLANT ACCOUNT for Depreciation for year 1895, as per Journal,	93	1,182	"
"	31	" BALANCE,		3,695	4
				£23,781	18

Dr.			Bank		
1895.			Folio.		
Jan.	1	To BALANCE brought forward,		£643	4
"	31	" CASH—Amount paid into Bank during month, C. B.,	79	1,000	"

Dr.			Cash		
1895.			Folio.		
Jan.	1	To BALANCE brought forward,		£76	9
"	31	" SUNDRY RECEIPTS for month, as per Cash Book,	79	757	19

Dr.			General Stores		
1895.			Folio.		
Jan.	1	To BALANCE, as per Inventory at 31st December, 1894,		£3,110	16
"	31	" PURCHASES, &c., for month, as per Purchase Day Book,	84	1,159	13
Feb.	28	" " " " " "	×	1,250	18
Mar.	31	" " " " " "	×	1,035	14
April	30	" " " " " "	×	1,150	19
May	31	" " " " " "	×	1,105	1
June	30	" " " " " "	×	1,104	18
July	31	" " " " " "	×	1,100	1
Aug.	31	" " " " " "	×	1,075	2
Sept.	30	" " " " " "	×	1,079	10
Oct.	31	" " " " " "	×	1,124	13
Nov.	30	" " " " " "	×	1,046	8
Dec.	31	" " " " " "	×	1,031	16
NOTE.—Debits from Journal or Cash Book would be described accordingly.					
1896.				£16,375	13
Jan.	1	" BALANCE, as per Inventory at 31st December, 1895,		£5,609	16

FOR GOLD MINING BUSINESS.

Account.													Cr.						
			Folio.	Journal.			Folio.	Cash Book.			Folio.	Purchase Day Book.			TOTAL.				
195.																			
n.	1	By BALANCE,													£21,720	8 11			
,	31	„ SUNDRIES,	91	£65	„	„	79	£1,000	„	„	83	£954	2 3		2,019	2 3			
cc.	31	„ „	93	42	7	9									42	7 9			

Account.					Cr.		
				Folio.			
395.							
Jan.	31	By CASH—Amount withdrawn during month,	C. B.,	80	£967	6	8

Account.				Cr.		
				Folio.		
1895.						
Jan.	31	By SUNDRY PAYMENTS for month, as per Cash Book,		80	£769	16 4

Account.					Cr.									
					Folio.	Stores Sold.			Stores Issued to Departments.			TOTAL.		
895.														
Jan.	31	By STORES ISSUED for month, as per Sales Day Book,			87	£	19	4	£343	4	6	£344	3	10
Feb.	28	"	"	"	×	4	5	"	526	5	11	530	10	11
Mar.	31	"	"	"	×	2	3	2	776	13	8	778	16	10
April	30	"	"	"	×	10	"	"	939	6	8	949	6	8
May	31	"	"	"	×	1	7	6	1,176	3	4	1,177	10	10
June	30	"	"	"	×	7	3	4	1,046	16	8	1,054	"	"
July	31	"	"	"	×	"	15	6	903	2	2	903	17	8
Aug.	31	"	"	"	×	"	5	9	751	17	10	752	3	7
Sept.	30	"	"	"	×	2	2	1	896	3	5	898	5	6
Oct.	31	"	"	"	×	1	4	7	952	12	1	953	16	8
Nov.	30	"	"	"	×	"	"	"	1,189	5	1	1,189	5	1
Dec.	31	"	"	"	×	6	"	4	1,227	19	1	1,233	19	5
						£36	6	7	£10,729	10	5	£10,765	17	"
"	31	BALANCE, as per INVENTORY at 31st December, 1895,										5,609	16	10
												£16,375	13	10

SPECIMENS of Ledger Accounts—continued,

Dr.

Works, Buildings, and

			Folio.			
1895.						
Jan.	1	To BALANCE, as per Inventory of Works, Buildings, and Fixed Plant at 31st December, 1894,		£15,754	16	8
Dec.	31	„ ERECTION OF NEW PLANT ACCOUNT. Amount transferred by authority of Engineer, as per his Certificate of 31st January, 1896 (a specimen of which is given on page 115),	Jo., 92	3,952	5	11
1896.				£19,707	2	7
Jan.	1	„ BALANCE, as per Inventory at 31st December, 1895,		£18,525	2	7

Dr.

Movable Plant

			Folio.			
1895.						
Jan.	1	To BALANCE, as per Inventory of Movable Plant at 31st December, 1894,		£2,367	3	„
Dec.	31	„ GENERAL WORKING ACCOUNT. Amount of Inventory at 31st December, 1895, in excess of Inventory at 31st December, 1894,	Jo., 92	193	19	„
1896.				£2,561	2	„
Jan.	1	„ BALANCE, as per Inventory at 31st December, 1895,		£2,561	2	„

Dr.

Wages

			Folio.	General Working Account.			Folio.	Erection of New Plant Account.			TOTAL.		
1895.													
Jan.	31	To SUNDRY WORKMEN ACCOUNT, as per Journal,	91	£563	4	7					£563	4	7
Feb.	28	„ „ „ „	×	620	10	10	×	£101	4	„	721	14	10
Mar.	31	„ „ „ „	×	639	13	2					639	13	2
April	30	„ „ „ „	×	697	2	5	×	140	2	4	837	4	9
May	31	„ „ „ „	×	705	9	3	×	343	3	6	1,053	12	9
June	30	„ „ „ „	×	687	5	4	×	331	3	9	1,018	14	1
July	31	„ „ „ „	×	672	1	4	×	202	12	4	874	13	8
Aug.	31	„ „ „ „	×	636	10	3	×	224	7	8	910	17	11
Sept.	30	„ „ „ „	×	664	10	9	×	160	4	„	824	14	9
Oct.	31	„ „ „ „	×	701	15	11	×	203	5	1	905	1	„
Nov.	30	„ „ „ „	×	699	10	7	×	74	„	„	773	10	7
Dec.	31	„ „ „ „	×	704	10	5	×	123	„	„	827	10	5
				£8,042	4	10		£1,908	7	8	£9,950	12	6

FOR GOLD MINING BUSINESS.

Fixed Plant Account.

Cr.

395.									
Dec.	31	By HEAD OFFICE ACCOUNT. For Depreciation, at rate of $7\frac{1}{2}$ per cent., on £15,754 16s. 8d., being Balance at Debit of this Account at 31st December, 1894, as per Journal,	Jo.,	93	£1,182	„	„		
		„ BALANCE, as per INVENTORY at 31st December, 1895,			18,525	2	7		
					£19,707	2	7		

Account.

Cr.

1895.			Folio.			
Dec.	31	By BALANCE, as per INVENTORY at 31st December, 1895,		£2,561	2	„
				£2,561	2	„

Account.

Cr.

1895.				Folio.			
Dec.	31	By GENERAL WORKING ACCOUNT,	Jo.,	92	£8,042	4	10
"	31	„ ERECTION OF NEW PLANT ACCOUNT,	Jo.,	92	1,908	7	8
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Note.</p> <p>For the Departmental allocation of the Monthly Debits, see the corresponding Wages Summary (Form 8), page 143.</p> </div>							
					£9,950	12	6

Note.

For the Departmental allocation of the Monthly Debits, see the corresponding Wages Summary (Form 8), page 143.

SPECIMENS of Ledger Accounts—continued,

Dr.		Stores Issued									
									TOTAL.		
1895.			Folio.	General Working Account.			Erection of New Plant Account.				
Jan.	31	To GENERAL STORES ACCOUNT, as per Sales									
		Day Book,	87	£343	4	6				£343	4 6
Feb.	28	" " " "	×	406	4	8	£120	1	3	526	5 11
Mar.	31	" " " "	×	671	6	2	105	7	6	776	13 8
April	30	" " " "	×	436	16	7	502	10	1	939	6 8
May	31	" " " "	×	662	16	"	513	7	4	1,176	3 4
June	30	" " " "	×	627	4	"	419	12	8	1,046	16 8
July	31	" " " "	×	708	2	2	195	"	"	903	2 2
Aug.	31	" " " "	×	651	8	7	100	9	3	751	17 10
Sept.	30	" " " "	×	834	15	10	61	7	7	896	3 4
Oct.	31	" " " "	×	952	12	1				952	12 1
Nov.	30	" " " "	×	1,163	2	6	26	2	7	1,189	5 1
Dec.	31	" " " "	×	1,227	19	1				1,227	19 1
				£8,685	12	2	£2,043	18	3	£10,729	10 4

Dr.		General Charges									
									TOTAL.		
1895.			Folio.								
Jan.	31	To LONDON OFFICE,	91	£65	"	"					
"	31	" CASH,	80	101	8	6					
Feb.	28	" PURCHASE DAY BOOK,	×	15	10	"					
"	28	" CASH,	×	135	2	"					
Mar.	31	"		166	17	6					
April	30	"		184	13	2					
May	31	"		196	15	7					
June	30	"		200	14	"					
July	31	"		210	"	6					
Aug.	31	"		180	2	4					
Sept.	30	"		225	"	8					
Oct.	31	"		250	3	2					
Nov.	30	"		175	13	10					
Dec.	31	"		64	19	2					
				£2,172	"	5					

FOR GOLD MINING BUSINESS.

Account.

Cr.

				Folio.					
1915.									
ec.	31	By GENERAL WORKING ACCOUNT,	Jo.,	92	£8,685	12	2		
,	31	„ ERECTION OF NEW PLANT ACCOUNT,	Jo.,	92	2,043	18	3		
<div>Note. For the Departmental allocation of the Monthly Debits, see the corresponding Stores Summary (Form 8), page 148.</div>									
						£10,729	10	5	

Account.

Cr.

				Folio.					
1915.									
Dec.	31	By GENERAL WORKING ACCOUNT,	Jo.,	92	£2,172	„	5		
<div>Note. The classification, &c., of the Monthly Debits should be given in an Abstract of General Charges, see note on General Expenditure Sheet (Form 8), page 150. Salaries and other Cash Charges should be all regularly paid each month, as there is no pro- vision otherwise for getting them into the General Expenditure Sheets for the period to which they belong.</div>									
						£2,172	„	5	

SPECIMENS of Ledger Accounts—continued,

Dr.					Sundries										
					Folio.	Erection of New Plant Account.			Folio.	General Working Account.			TOTAL.		
1895.															
Jan.	31	To SUNDRIES, as per Purchase Day Book,								84	£15	"	"	£15	"
Feb.	28	"	"	"	"					×	14	7	8	14	7
Mar.	31	"	"	"	"					×	20	16	"	20	16
April	30	"	"	"	"					×	16	12	10	16	12
May	31	"	"	"	"					×	12	7	5	12	7
June	30	"	"	"	"					×	13	11	7	13	11
July	31	"	"	"	"					×	10	4	3	10	4
Aug.	31	"	"	"	"					×	15	10	8	15	10
Sept.	30	"	"	"	"					×	19	2	4	19	2
Oct.	31	"	"	"	"					×	13	15	2	13	15
Nov.	30	"	"	"	"					×	21	2	5	21	2
Dec.	31	"	"	"	"					×	26	5	4	26	5
											£198	15	8	£198	15

Dr.			General Working						
1895.				Folio.					
Jan.	1	To Stock of Ore not delivered for treatment, as per Inventory, brought down,						"	"
Dec.	31	„ SUNDRIES. Amounts transferred from—							
		WAGES ACCOUNT,			£8,042	4	10		
		STORES ISSUED ACCOUNT,			8,685	12	2		
		GENERAL CHARGES ACCOUNT,			2,172	„	5		
		SUNDRIES ACCOUNT,	Jo., 92		198	15	8	£19,098	13
								£19,098	13

FOR GOLD MINING BUSINESS.

Account.

Cr.

195.				Folio.			
Dec.	31	By GENERAL WORKING ACCOUNT,	Jo.,	92	£198	15	8
<div>Note. For the Departmental allocation of the Monthly Debits, see the General Expenditure Sheet (Form 8) and relative note thereon, page 150.</div>							
					£198	15	8

Account.

Cr.

195.				Folio.			
Dec.	31	By MOVABLE PLANT ACCOUNT. Amount in excess of Inventory at 31st December, 1895, over Inventory at 31st December, 1894,	Jo.,	92	£193	19	„
„	31	„ Stock of Ore not delivered for treatment, as per Inventory, carried down,			„	„	„
„	31	„ HEAD OFFICE ACCOUNT. Balance transferred,	Jo.,	93	18,904	14	1
					£19,098	13	1

SPECIMENS of Ledger Accounts—continued,

Dr.		Erection of New									
1895. Dec.	31	To SUNDRIES. Amounts transferred from—		Folio.							
		WAGES ACCOUNT,	Jo., 92	£1,908	7	8					
		STORES ISSUED ACCOUNT,	Jo., 92	2,043	18	3					
		GENERAL CHARGES ACCOUNT (if any),									
		SUNDRIES ACCOUNT (if any),									
									£3,952	5	1
									£3,952	5	1

Dr.		Incidental Receipts									
1895. Dec.	31	To HEAD OFFICE ACCOUNT. Transferred,		Jo., 93	£24	15					
									£24	15	

Dr.		Sundry Workmen									
1895.				Folio.							
Jan.	6	To CASH.	BALANCE for December, 1894,	80	£232	1					
"	31	" "	Account " January,	80	433	2					
Feb.	6	" "	BALANCE " "	x	130	2					
"	28	" "	Account " February,	x	721	14					
Mar.	31	" "	" " March,	x	639	13					
April	30	" "	" " April,	x	837	4					
May	31	" "	" " May,	x	1,050	"					
June	30	" "	" " June,	x	1,018	14					
July	31	" "	" " July,	x	874	13					
"	31	" UNCLAIMED WAGES Account	" "	x	3	12					
Aug.	31	" CASH.	Account " August,	x	910	17					
Sept.	30	" "	" " September,	x	810	14					
Oct.	31	" "	" " October,	x	905	1					
Nov.	30	" "	" " November,	x	773	10					
Dec.	31	" "	" " December,	x	420	8					
"	31	" UNCLAIMED WAGES Account	" "	x	14	"					
"	31	" BALANCE carried forward,			407	2					
					£10,182	14					

FOR GOLD MINING BUSINESS.

Plant Account.

Cr.

1895. Dec.	31	By WORKS, BUILDINGS, and FIXED PLANT ACCOUNT. Amount trans- ferred to that Account in terms of Engineer's Certificate of 31st Jan., 1896,	Folio. 92	 £3,952	 5	 11
				£3,952	5	11

Account.

Cr.

1895. Jan.	31	By SALES DAY BOOK,	Folio. 87	 £12	 3	 "
Mar.	31	" CASH,	×	5	10	"
Dec.	23	" "	×	7	2	"
				£24	15	"

Account.

Cr.

1895. Jan.	1	By BALANCE brought forward,	Folio.	£232	1	6
"	31	" WAGES ACCOUNT,	91	563	4	7
Feb.	28	" "	×	721	14	10
Mar.	31	" "	×	639	13	2
April	30	" "	×	837	4	9
May	31	" "	×	1,053	12	9
June	30	" "	×	1,018	14	1
July	31	" "	×	874	13	8
Aug.	31	" "	×	910	17	11
Sept.	30	" "	×	824	14	9
Oct.	31	" "	×	905	1	"
Nov.	30	" "	×	773	10	7
Dec.	31	" "	×	827	10	5
				£10,182	14	"
1896. Jan.	1	" BALANCE brought forward,		£407	2	"

Note.
Any amounts for Wages which it is not expected will be claimed, should be transferred to credit of Unclaimed Wages Account.

SPECIMENS of Ledger Accounts—continued,

Dr.				Unclaimed			
1895.				Folio.			
Dec.	31	To HEAD OFFICE ACCOUNT. Transferred,	Jo.,	93	£17	12	
					£17	12	

FOR GOLD MINING BUSINESS.

Wages Account.

Cr.

1895.					Folio.			
July.	31	By SUNDRY WORKMEN ACCOUNT,	Jo.,	×	£3	12	9	
Dec.	31	" " " " "	Jo.,	×	14	"	"	
						£17	12	9

SPECIMENS of Ledger Accounts—continued,

Dr.

James

1895. Jan.	5	To CASH,	Folio. 80	£1	4	1
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Dr.

John Black

1895. Jan.	17	To CASH,	Folio. 80	£104	„	
---------------	----	----------	--------------	------	---	--

Dr.

Thomas

1895. Jan.	20	To CASH,	Folio. 80	£15	„	
---------------	----	----------	--------------	-----	---	--

Dr.

Perkin

1895. Jan.	31	To CASH,	Folio. 80	£100	6	
---------------	----	----------	--------------	------	---	--

Dr.

James

1895. Jan.	4	To GENERAL STORES ACCOUNT, as per Sales Day Book,	Folio. 87	£ „	19	4
---------------	---	---	--------------	-----	----	---

Dr.

Robert

1895. Jan.	7	To INCIDENTAL RECEIPTS ACCOUNT, as per Sales Day Book,	Folio. 87	£12	3	„
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FOR GOLD MINING BUSINESS.

White.

Cr.

1895. Jan.	3	By GENERAL STORES ACCOUNT, as per Purchase Day Book,	Folio. 83	£1	4	11
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& Co.

Cr.

1895. Jan.	15	By GENERAL STORES ACCOUNT, as per Purchase Day Book,	Folio. 83	£104	„	„
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Brown.

Cr.

1895. Jan.	17	By SUNDRIES ACCOUNT, as per Purchase Day Book,	Folio. 83	£15	„	„
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& Webb.

Cr.

1895. Jan.	31	By GENERAL STORES ACCOUNT, as per Purchase Day Book,	Folio. 84	£100	6	„
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Thomson.

Cr.

1895. Jan.	10	By CASH,	Folio. 79	£ „	19	4
---------------	----	----------	--------------	-----	----	---

Anderson.

Cr.

1895. Jan.	10	By CASH,	Folio. 79	£7	„	„
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Wages Sheets.

Form 6.

Responsible Officer.

The Wages Clerk. He should be under the close personal superintendence of both the General Manager and the Commercial Superintendent.

Foreman's Time Book.

The Foremen of the departments A to F should each have a book into which the time of all their men is entered (see page 11), and on which the Wages Sheets are based.

The **number of men** charged to the various departments in the Wages Sheets should be checked and agreed by the Accountant with the various departmental reports of work done from A to F, where the number of men employed are also enumerated.

The **number of men** at work on Repairs and Renewals to Plant, which is done by the staff specially kept for repairing, and the apportionment of time to each particular part of the plant, should be clearly shewn in the Repairing Foreman's Book, so that the proper account can be charged with it. This **distribution** is shewn in Form G.

It is often convenient to keep one or two labourers for doing general work, who may be moved about as ordered by the Manager.

A note should be kept of the different jobs on which they have been engaged, and the proper department debited.

Entries.

These are taken from the Foremen's Time Books above referred to. Sometimes the Foreman also writes up the Wages Sheet, and the pay is calculated out by the Wages Clerk.

If any deductions have to be made from the men's wages for Stores or other charges, a separate column must be provided on the Form for this purpose.

Salaries:

The salaries of the following should be charged in their proper departments in the Wages Sheet:—

**MINE SURVEYOR.
MILL SUPERINTENDENT.
METALLURGIST.
MECHANICAL ENGINEER.**

The salaries of the following officials should be charged direct through the Cash Book to General Charges:—

**GENERAL MANAGER.
COMMERCIAL SUPERINTENDENT.
ASSAYER.
WAGES CLERKS.
STORES CLERKS OR STOREKEEPERS.**

The Total of Wages to be Entered in the Journal (Form No. 4), page 91, and credited there to Sundry Workmen in the manner shewn.

FOR GOLD MINING BUSINESS.

Specimens (see pages 133 and 134).

The wages are paid weekly, fortnightly, or monthly, according to the custom of the country.

A copy is given of the Forms in common use in the Transvaal and in Australia.

It is usual in Australia to get the men to sign their names on the Wages Sheet when they receive their pay, payment being often made by cheque.

It will be observed that, in the corner of the Wages Sheet, a Summary is given of the expenditure under the sub-heads. It is from this Summary that the figures required for the Wages Summary part of General Expenditure Sheet No. 8 (see page 143) are obtained.

Copies for the Head Office.

Copy of Wages Sheets to be forwarded monthly to the Head Office on the Form as arranged.

SPECIMEN of Valages Sheets

Transvaal

Mine.

This Sheet may be used for a single level or section of a Mine, as

	NAME.	NUMBER.	CLASS OF LABOUR.	WHERE EMPLOYED.	HOW EMPLOYED.	TOTAL.
	W. Griffiths,		Fireman,		Stopping, 14 Driving, 8 Tramming, 2	24
	S. Jones,		Blacksmith,		Stopping, 14 Driving, 6 Tramming, 4	24
	J. Johnson,		Miner,		Stopping, 23	23
	G. Watson,		"		Driving, 21	21
	Natives, No.	501	Miner,	Stope No. 37,	Stopping, 24	24
		502	"	" "	Stopping, 24	24
		503	Labourer,		Tramming, 24	24
		504	Miner,	No. 2 Level,	Driving, 9	9
		505	"	" "	Driving, 24	24
		506	Cook,		Driving, 12 Stopping, 12	24
		507	Labourer,		Tramming, 24	24
		508 &c.	Miner, &c.	Stope No. 38,	Stopping, 24 &c.	24

SUMMARY.

Mining—

Stopping, ...	£120	4	6
Driving, ...	26	17	4
Tramming, ...	15	10	3
&c.			
	£239	16	2

Australian

Mine.

This Sheet may be used for a single level or section of a Mine, as

	NAME.	NUMBER.	CLASS OF LABOUR.	WHERE EMPLOYED.	HOW EMPLOYED.	TOTAL.
	Beaun,	1	Miner,	Stope south from	Stopping, 12	12
	Jones,	2	"	No. 8 Shaft	Stopping, 12	12
	Williams,	3	"	over Level,		
	Harvey,	4	"	Driving south	Driving, 9	9
	Lloyd,	5	"	from No. 8	Driving, 12	12
	Guans,	6	"	Shaft—Level,		
	&c.	&c.	&c.	Sinking No.	Sinking, 12	12
				Shaft (wet),	Sinking, 12	12
				&c.		

SUMMARY.

Mining—

2 Stopping, ...	£14	"	"
2 Driving, ...	12	5	"
2 Sinking, ...	16	"	"
&c.			
	£78	5	"

FOR GOLD MINING BUSINESS.

Specimen.

arranged, and also for the different departments of the Reduction Works. February, 1897.

DAYS WORKED.																															RATE.	AMOUNT.																					
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																									
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								£30 per mo.,	£30	s.	d.																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								20/ per day,	24	"	"																		
/	/	/			/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								18/4 "	21	1	8																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/												16/8 "	17	10	"																	
																															£92	11	8																				
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								40/ per mo.,	2	"	"																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								35/ "	1	15	"																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								30/ "	1	10	"																		
															/	/	/	/	/	/											35/ "	"	13	"																			
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								32/6 "	1	12	6																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								37/6 "	1	17	6																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								30/ "	1	10	"																		
/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/		/	/	/	/	/	/								40/ "	2	"	"																		
						&c.																											&c.		&c.																		
																															£239	16	2																				

Date,.....

.....Wages Clerk.

Specimen.

arranged, and also for the different departments of the Reduction Works. Ending 3rd March, 1897.

DAYS WORKED.												RATE.	AMOUNT.			RECEIVED PAYMENT.
20 S.	22 M.	23 T.	24 W.	25 Th.		26 F.	27 S.	28 M.	1 T.	2 W.	3 Th.					
/	/	/	/	/		/	/	/	/	/	/	11/8	£ 7	s. "	d. "	<div>Note. The Forms on this page may be filled in by the Fore- man and handed in to the Office, the calculations being afterwards extended in the last column by the Office Staff.</div>
/	/	/	/	/		/	/	/	/	/	/	11/8	7	"	"	
		/	/	/		/	/	/	/	/	/	11/8	5	5	"	
/	/	/	/	/		/	/	/	/	/	/	11/8	7	"	"	
/	/	/	/	/		/	/	/	/	/	/	13/4	8	"	"	
/	/	/	/	/		/	/	/	/	/	/	13/4	8	"	"	
				&c.						&c.		13/4 &c.		&c.	"	
													£78	5	"	

Date,.....

.....Wages Clerk.

Stores Ledger.

Form 7.

Responsible Officer.—The Stores Clerk.

The Storekeeper should, by careful attention to the Stores Ledger, verify his stocks from time to time when these run low. A list of articles running out should be handed to the General Manager in time, so that he can get the stocks replaced if required.

Stores Ledger Balances.

A list of these to be forwarded to Head Office half-yearly, or periodically, as arranged.

Distribution of Stores.

The directions for the proper distribution and charging of stores to the different departments are to be found in the Stores Issued Book (Form 7a), page 139.

A Statement, tabulated in any suitable form, should be made up periodically, shewing the particulars of articles most in use, such as fuel, timber, wearing parts of machinery, tools, and like goods, and how they are distributed to the various subdivisions of the work.

Entries.

The weight, quantity, and value of all goods and supplies of every kind, machinery, tools, furniture, stationery, chemicals, &c., should be entered in the Stores Ledger under the respective accounts to which they belong. The entries for the DEBIT side are almost all obtained from the Purchase Day Book, and the total of the items so posted every month must also be posted to the DEBIT of the General Stores Account in the Mines Ledger.

The DELIVERED or CREDIT side may be most conveniently posted from the Stores Issued Book, the total of which is passed through the Sales Day Book, from which the corresponding CREDIT posting is obtained for the General Stores Account in the Mines Ledger.

Specimen.

See page 137.

Copies for the Head Office.

No copy of this book to be sent to the Head Office, as sufficient information is given in Stores Issued Book (Form 7a) and in the Purchase Day Book.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMEN of Stores Ledger

DRILL STEEL.															
RECEIVED.							DELIVERED.								
Date.	Folio.	Quantity or Weight.	Rate.	Value.			Date.	Folio.	Quantity or Weight.	Rate.	Value.				
		Qrs. Lbs.		£	s.	d.			Qrs. Lbs.		£	s.	d.		
1895. Jan.	1	STOCK,					1895.								
"		3 0	56/	2	2	"	Jan.	140	2 8½	6d.	1	12	3		
	83	2 14		1	4	11									
SHOVELS.															
1895. Jan.	1	STOCK,		£	s.	d.	1895.				£	s.	d.		
		120	3/9	22	10	"	Jan.	140	6	3/9	1	2	6		
LIME.															
1895. Jan.	1	STOCK,		£	s.	d.	1895.				£	s.	d.		
		5 Bags,	11/6	2	17	6	Jan.	87	1 Bag,	11/6	"	11	6		
ENGINES.															
1895. Jan.		83 1 Winding,		£	s.	d.									
				695	6	"									

FOR GOLD MINING BUSINESS.

DYNAMITE.													
RECEIVED.							DELIVERED.						
Date.	Folio.	Quantity or Weight.	Rate.	Value.			Date.	Folio.	Quantity or Weight.	Rate.	Value.		
				£	s.	d.					£	s.	d.
1895. Jan. 1,		STOCK, 50 Cases,	95/	237	10	„	1895. Jan.,	140	6 Packets,	9/	2	14	„
CRUCIBLES.													
				£	s.	d.					£	s.	d.
1895. Jan. 1,		STOCK, 24 Clay,	7d.	„	14	„	1895. Jan.,	87	10 Clay,	7d.	„	5	10

Note.

Arrangement of the Stores Ledger.

In practice, the pages should be larger than shewn in this Specimen, so that a large number of Accounts can be shewn at one opening.

Some skill can be shewn in the way in which the Accounts can be arranged in this book. Each Account should have a number of its own. These should be conveniently grouped together; for instance, the different picks might be one set of numbers, and the shovels another, and so on. Additional columns can be added if any further information is wanted.

Stocks.

These Accounts should be treated similarly to Ordinary Ledger Accounts, bringing down, periodically, the balance on hand, which in every case must of course be a debit balance representing the stock on hand.

Machinery.

Each piece of Machinery should have a separate Account of its own.

Index.

A complete index should be made of the Accounts in the Stores Ledger for easy reference.

RULES for KEEPING the ACCOUNT BOOKS

THE STORES ISSUED OR STORES USED BOOK.

Form 7a.

In this book is recorded the distribution of Stores referred to under the head of Stores Ledger, on page 135.

Responsible Officer.—The Stores Clerk.

Foreman's Order.

No stores are to be issued without a Foreman's Order (see Specimen on page 14). These orders should state the articles wanted, and the department or subdivision in which they are to be used. The orders should be kept conveniently on a file till the end of the month, when they should be sorted out and summarized—all picks together, all shovels together, and so on, so as to facilitate the making up of this book.

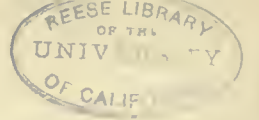
Entries.

This book is written up from the Foremen's Orders above referred to, and contains, in an analytical form, full details of all Stores issued under the departmental headings chargeable with them.

Stores Issued or Used Book

Weights, Measures, and Quantities.

DESCRIPTION.	Rate.	MINING.				Transport to Mill.	Milling and Crushing.	Cyaniding.		
		Sinking.	Driving Levels.	Stoping.	Tramming to Surface.					
Rations—Mealies,	26/3md.	2 mds.	3¾ mds.	9¾ mds.	6¼ mds.					
Steel,	6d. lb.	43¼ lbs.	21 lbs.							
Picks,	3/ ea.			3						
Shovels,	3/9 ea.			6						
Hammers,	4½d. lb.			28 lbs.						
Hammer Handles,	4d. ea.			4						
Iron (Square),	4d. lb.				16 lbs.					
Timber, × ×	ft.	ft.	ft.	ft.						
Dynamite,	9/ pkt.		6 pkts.							
Fuse,	5/1 box		1 box							
Paraffin,	2/6 gal.	1 gal.	2 gals.	9 gals.	3 gals.					
Linseed Oil,	9d. bot.		3 bots.							
Anti-friction Grease,	4d. lb.				60 lbs.					
Lard Oil,	5/3 gal.				1 gal.					
Wheelbarrows,	25/ ea.				2					
&c.,										
&c.,										



FOR GOLD MINING BUSINESS.

Postings.

From this book are obtained the postings for the DELIVERED or CREDITOR side of the Accounts in the Stores Ledger. The total of same is to be entered in the Sales Day Book, from which the corresponding CREDIT posting is obtained for the General Stores Account in the Mines Ledger.

Specimen.

A suitable form for this book is shewn at foot.

Copies for the Head Office.

A copy of "Stores Issued or Stores Used" Book is to be sent monthly to the Head Office on the Form provided for the purpose.

for the Month of January, 1895.

Amounts Charged to Departments.

Total quantity.	Stores Ledger Folio.	Total Value.	MINING.												Transport to Mill.	Milling and Crushing.	Cyaniding.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
			Sinking.			Driving Levels.			Stoping.			Tramming to Surface.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

General Expenditure Sheet, *Form 8.*

Responsible Officers.—The General Manager, the Commercial Superintendent, and the Accountant.

Entries.

The GENERAL EXPENDITURE SHEET combines in one schedule the total outgoings for the month, arranged under their respective departmental headings, and classified in columns corresponding to the four Ledger Accounts.

The figures in the WAGES Column are taken from the WAGES SUMMARY, pages 143, 144.

„	STORES	„	„	STORES SUMMARY, pages 145-148.
„	GENERAL CHARGES	„	„	LEDGER ACCOUNT, &c., pp. 121, 122.
„	SUNDRIES	„	„	LEDGER ACCOUNT, pages 123, 124.

The figures of quantities are taken as follows :—

- A, SURFACE PROSPECTING BOOK, pages 41 and 42.
- B, UNDERGROUND PROSPECTING BOOK, pages 45 and 46, or 49 and 50.
- C, MINING AND ORE TRANSPORT REPORT BOOK, pages 49 and 50.
- D, MILLING AND CRUSHING REPORT BOOK, pages 53 and 54.
- E, CYANIDING REPORT BOOK, pages 57 and 58.
- F, POWER REPORT BOOK, pages 61 and 62.
- G, MAINTENANCE OF PLANT BOOK, pages 73 and 74.

Note.—There are also the items of maintenance of Plant carried out by the Departments C, D, E, and F. The total of the Maintenance Account should be distributed at the end of the year according to the Expenditure Schedules.

Specimen.

See pages 143 to 152.

Copies for the Head Office.

Copy of the General Expenditure Sheet to be forwarded monthly to the Head Office on the Form provided for the purpose.

FOR GOLD MINING BUSINESS.

SPACE RESERVED FOR MS. NOTES.

SPECIMEN of General Expenditure Sheet

Part I.—Summary of Wages

[illegible]

FOR GOLD MINING BUSINESS.

for the Month of January, 1895.

(See Form 6 for details.)

[illegible]

SPECIMEN of General Expenditure Sheet

Part II.—Summary of Stores Issued

Form shewing Details of Work done.	ALLOCATION SCHEDULES giving CLASSIFICATION of WORK.	RATIONS.			TOOLS & MOVABLE PLANT.			TIMBER.			EXPLOSIVES.			OILS, &c., FOR LIGHTING & LUBRICATING			WEARING PART OF MACHINERY	
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.
A	Prospecting—Surface,																	
B	Prospecting—Underground,	2	17	3	1	15	4	1	10	„	„	10	„	„	15	„	1	5
C	Development—																	
	Sinking,																	
	Driving Levels,	2	10	„	„	10	3											
C	Mining—																	
	Sinking,	2	12	6	1	1	9	2	5	7				„	2	6		
	Driving Levels,	4	18	10	„	10	6	2	10	„	2	19	1	„	7	3		
	Stoping,	12	19	6	2	3	4	3	2	6				1	2	4		
	Tramming & Haulage to Surface,	8	7	3	„	5	3							1	12	9	2	10
F	Power (Steam or otherwise),																	
C	Transport to Mill—	8	8	11	2	7	1							2	„	10		
F	Power (Steam or otherwise),																	
D	Milling and Crushing—	17	2	8	4	19	2							5	8	1		
F	Power (Steam or otherwise),																	
E	Cyaniding—	18	1	10	1	3	4							1	4	3		
F	Power (Steam or otherwise),																	
	Office, Store, &c.—																	
	Laboratory,	„	15	„	7	1	3							„	7	3		
	Office and Store,	1	10	„	„	„	„							„	15	„	1	„
	Staff Quarters,																	
	Stable,	„	15	„	„	6	„							„	5	7		
Forward,		£80	18	9	£22	3	3	£9	8	1	£3	9	1	£14	„	10	£4	15

SPECIMEN of General Expenditure Sheet

Part II.—Summary of Stores Issued—continued,

Form shewing Details of Work done.		ALLOCATION SCHEDULES giving CLASSIFICATION of WORK.			RATIONS.			TOOLS & MOVABLE PLANT.			TIMBER.			EXPLOSIVES.			OILS, &c., FOR LIGHTING & LUBRICATING			WEARIN PART O MACHINE	
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.		
G C		Forward,	80	18	9	22	3	3	9	8	1	3	9	1	14	„	10	4	15		
		MAINTENANCE OF PLANT.																			
		MINING—																			
		Pumping Gear,																			
		Rock Drills and Compressors,																			
		HAULAGE—																			
		Hauling Gear,	„	15	„	„	8	6													
		Underground Tramway,																			
		Main Shaft,																			
		Houses over Hauling Engines,	„	5	6																
D		TRANSPORT—																			
		Maintenance of Tramways,	2	1	7	„	2	6												7	1
		MILLING—																			
E		Mills, Rock-breakers, &c.,	1	7	6	1	10	„													
		Houses over Mills,																			
		CYANIDING—																			
F		Cyanide Plant,	3	10	4	„	15	4	18	7	6										
		Houses over Cyanide Plant,	„	3	5																
		POWER—																			
		Pumping Engines and Boilers,																			
		Hauling Engines and Boilers,																			
		Hydraulic Power, including																			
		Mill Race,																			
		Mill Engines and Boilers,																			
		Dynamoes, Motors, and Trans-																			
		formers,																			
		Electric Cable Lines,																			
		Switch Boards and Instruments,																			
		Oil Engines,																			
		OFFICE, STORE, &c.—																			
		Laboratory,																			
		Office and Store,																			
		Staff Quarters,																			
		Stables,																			
		 (See Note on page 144.)																			
		ERECTION OF NEW PLANT.																			
		(See Note on page 144.)																			
			£89	2	1	£24	19	7	£27	15	7	£3	9	1	£14	„	10	£11	16		

FOR GOLD MINING BUSINESS.

for the Month of January, 1895.

(See Form 7a for details.)

[illegible]

SPECIMEN of General Expenditure Sheet

Part III.—Total Expenditure—namely, Wages, Stores Issued, General

Form showing Details of Work Done.	WORK DONE.	ALLOCATION SCHEDULES giving CLASSIFICATION of WORK.	WAGES, as per Form 6.								
			Native Workmen.			Other Workmen.			Total.		
						£	s.	d.	£	s.	d.
A		Prospecting— <i>Surface</i>,							...	...	...
B		Prospecting— <i>Underground</i> ,							36	11	11
C		Development—									
		<i>Sinking</i>,							...	...	...
		<i>Driving Levels</i> ,							5	14	..
C		Mining—									
	75 ft.,	<i>Sinking</i> ,							12	3	6
	127 „	<i>Driving Levels</i> ,							26	17	..
	680 tons,	<i>Stopping</i> ,							120	4	6
	680 „	<i>Tramming and Haulage to Surface</i> ,							15	10	..
F		<i>Power (Steam or otherwise)</i>,							...	...	..
C	750 tons,	Transport to Mill—							40	19	..
F		<i>Power (Steam or otherwise)</i>,							...	...	..
D	1000 tons,	Milling and Crushing—							116	3	10
F		<i>Power (Steam or otherwise)</i>							...	...	..
E	850 tons,	Cyaniding—							104	4	6
F		<i>Power (Steam or otherwise)</i>,							...	...	..
		Office, Store, &c.—									
		<i>Laboratory</i> ,							2	..	..
		<i>Office and Store</i> ,							4
		<i>Staff Quarters</i> ,						
		<i>Stable</i> ,							3
		Salaries,									
		Other Charges,									
		Forward,							£487	8	10

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FOR GOLD MINING BUSINESS.

Charges, and Sundries, for the Month of January, 1895.

STORES, per Form 7a.			GENERAL CHARGES.			SUNDRIES.			TOTAL.			REMARKS.
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
...	
8	12	7							45	4	6	Development Account.
												See Note on Development, page 112.
...	
3	...	3							8	14	3	
6	2	4							18	5	10	
11	5	8							38	3	..	
19	7	8				15	..	..	154	12	2	
12	15	3							28	5	6	
...	
12	16	10							53	15	10	
...	
34	16	11							151	..	9	
...	
139	19	5							244	3	11	
...	
16	18	1							18	18	1	
6	5	..							10	5	..	
...	
1	6	7							4	6	7	
			83	6	8				83	6	8	
			18	1	10	65	..	..	83	1	10	
273	6	7	£101	8	6	£80	..	..	£942	3	11	

SPECIMEN of General Expenditure Sheet

Part III.—Total Expenditure—namely, Wages, Stores Issued, General

Form showing Details of Work Done.		ALLOCATION SCHEDULES giving CLASSIFICATION of WORK.	WAGES, as per Form 6.								
			Native Workmen.			Other Workmen.			Total.		
						£	s.	d.	£	s.	d.
G	C		Forward,						487	8	10
		MAINTENANCE OF PLANT.									
G	C	MINING—									
		Pumping Gear,									
G	C	Rock Drills and Compressors,									
		HAULAGE—									
G	C	Hauling Gear,							15	„	„
		Underground Tramway,									
G	C	Main Shaft,									
		Houses over Hauling Engines,							6	1	2
D	C	TRANSPORT—									
		Maintenance of Tramways,							10	2	5
D	C	MILLING—									
		Mills, Rock-breakers, &c.,							15	4	2
E	C	Houses over Mills,									
		CYANIDING—									
E	C	Cyanide Plant,							22	1	2
		Houses over Cyanide Plant,							7	6	10
F	C	POWER—									
		Pumping Engines and Boilers,									
F	C	Hauling Engines and Boilers,									
		Hydraulic Power, including Mill Race,									
F	C	Mill Engines and Boilers,									
		Dynamos, Motors, and Transformers,									
F	C	Electric Cable Lines,									
		Switch Boards and Instruments,									
F	C	Oil Engines,									
		OFFICE, STORE, &C.—									
F	C	Laboratory,									
		Office and Store,									
F	C	Staff Quarters,									
		Stables,									
		(See Note on page 144.)				TOTALS as per LEDGER A/CS.,			£563	4	„
		ERECTION OF NEW PLANT.									
		(See Note on page 144.)									
						TOTALS as per LEDGER A/CS.,		

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FOR GOLD MINING BUSINESS.

Charges, and Sundries, *for the Month of January, 1895.*

STORES, as per Form 7a.			GENERAL CHARGES.			SUNDRIES.			TOTAL.			REMARKS.
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
273	6	7	101	8	6	80	"	"	942	3	11	
2	16	3							17	16	3	
"	5	6							6	6	8	
9	5	8							19	8	1	
31	16	8							47	"	10	
24	13	2							46	14	4	
1	"	8							8	7	6	
£343	4	6	£101	8	6	£80	"	"	£1087	17	7	
												TOTAL DEBIT to General Working Account.
												TOTAL DEBIT to Erection of New Plant Account.

Date,

.....Commercial Superintendent.

.....General Manager.

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MONTHLY CABLEGRAM BOOK.

Form 8a.

Responsible Officer.—The Commercial Superintendent.

Entries.—*The General Expenditure Sheet.*

Head Office.

The following are notes for guidance in despatching Cablegrams to the Head Office:—

In cases of work under development, or the erection of new works where no crushing is going on, the monthly telegram should be sent giving the total expenditure for the month. The code word for this telegram should be specifically arranged.

In cases of development, new works, and crushings going on, it must be observed that the Working Expenses and Expenditure on New Plant are kept separate.

The Working Expenses, however, should include repairs or renewal of plant, Expenditure on Plant being cost and erection of new plant only.

As only one code word, representing quantity or amount, is to be used for each line, it is necessary always to send the messages in the same order as printed.

Presuming that no ore had been treated at the Mill, the second word in the message would be "Nil," which would be understood as applying to both the "Ore Crushed" and "Bullion Recovered."

Should there be occasion to give any further information in the monthly telegram, it must always come at the end, after the regular information (as printed) has been given.

This book should have interleaved perforated duplicates to be filled up by using carbon paper. They are then to be posted to the Head Office by first mail after the despatch of the cablegram to which they refer.

Specimen.

On the other side is a Specimen of a Cablegram.

As an example, in telegraphing a monthly return, the actual Code message is presumed to be as printed in red in the first column.

FOR GOLD MINING BUSINESS.

RESULTS OF THE MINES OPERATIONS

For the Month of.....189.....

CODE WORD.	FOR		QUANTITY AND AMOUNT.
<i>Votive,</i>	Mining,	<i>Ore mined,</i>	<i>2,500 tons.</i>
<i>Votagione,</i>	Milling,	<i>Ore crushed,</i>	<i>2,300 tons.</i>
<i>Unassisted,</i>	Do.,	<i>Bullion recovered,</i>	<i>1,700 ozs.</i>
<i>Voskleurig,</i>	Cyaniding,	<i>Ore, &c., treated,</i>	<i>1,800 tons.</i>
<i>Unartig,</i>	Do.,	<i>Bullion recovered,</i>	<i>1,450 ozs.</i>
<i>Unwrought,</i>	Estimated Value,	<i>Total Bullion,</i>	<i>£9,100</i>
<i>Unverburgt,</i>	Mining, Milling, & Cyaniding, (including Repairs & General Charges,)	<i>Expenses,</i>	<i>£4,000</i>
<i>Untastbar,</i>	Plant and other	<i>Expenditure,</i>	<i>£240</i>

RULES for KEEPING the ACCOUNT BOOKS

The PROGRESSIVE SUMMARY of the GENERAL EXPENDITURE SHEETS.

Form 8b.

Responsible Officer.—The Accountant.

Entries.

The various headings of the Expenditure Sheet Schedules in Form 8 may, for all practical purposes, be looked upon as so many subsidiary DEPARTMENTAL LEDGER ACCOUNTS, the figures appearing in the outer column being, as it were, the monthly postings. Some form of Summary Book therefore is required, in order to provide for the scheduling of these figures in such a manner as to bring out the accumulating figures throughout the year; and for this purpose the form given opposite will be found a suitable one.

A Summary of this kind is of course open to considerable variations, according to amount of detail wanted. It may consist of the figures in the outer column only, or it may be preceded by summaries of the figures in say the Wages and Stores Issued columns respectively; in which case the book should be divided into three parts accordingly, but the form of ruling should be the same for each part.

Another form of Summary, and one that may commend itself to some Companies, would be to condense the figures and summarize them under the *principal headings only*; in which case the summary would also, as above, consist either of the total figures only, or of the Wages and Stores in separate parts.

In any case, the Expenditure Sheet Schedules (Form 8) must be cast up according to the totals required.

Copies for the Head Office.

No copy of this book is sent to the Head Office monthly, but results can be sent on if required.

When periodically required for the Head Office, the progressive totals for three months, six months, or a year, can be filled in on one of the Monthly Expenditure Sheet Forms.

FOR GOLD MINING BUSINESS.

Specimen.

NOTE.—The figures in black ink represent the monthly expenditure taken from the Expenditure Schedules in No. 8, those in red being the progressive totals.

DEPARTMENTS.	JANUARY.	FEBRUARY.	MARCH.	&c.
	£ s. d.	£ s. d.	£ s. d.	
Prospecting—Surface,	... ..	... ..	... ..
Prospecting—Underground,	45 4 6	37 10 0	41 2 6	&c.
	... ..	82 14 6	123 17 0	&c.
Development—				
<i>Sinking,</i>	... ..	... ..	... ..
<i>Driving Levels,</i>	8 14 3	10 16 9	7 5 2	&c.
	... ..	19 11 0	26 16 2	&c.
Mining—				
<i>Sinking,</i>	18 5 10	16 4 2	20 1 2	
<i>Driving Levels,</i>	38 3 0	31 7 9	40 2 4	
<i>Stoping,</i>	154 12 2	140 12 8	183 5 10	&c.
<i>Tramming and Haulage to</i>				
<i>Surface,</i>	28 5 6	22 5 6	37 14 9	
<i>Power (Steam or otherwise),</i>	... ..	... ..	... ..
	... ..	503 12 5	835 10 8	&c.
Transport to Mill—	53 15 10	50 14 2	65 13 3	&c.
<i>Power (Steam or otherwise),</i>	... ..	... ..	... ..
	... ..	104 10 0	170 3 5	&c.
&c.				

NOTE.—The progressive totals only may be used if preferred, so as to shorten the summarizing; in which case only the figures shewn above in red would be given.

RULES for KEEPING the ACCOUNT BOOKS

THE CLASSIFICATION OF MINING COSTS.

In order to shew the general applicability of the Schedules set out in the preceding pages, the following table has been drawn up, giving a comparison of the heads of classification appearing in the published accounts of three important Mines in the Transvaal, with those adopted in the Specimen Forms contained in this book:—

SPECIMEN SCHEDULE <i>(as on pages 143 to 152).</i>	MINE No. 1.	MINE No. 2.	MINE No. 3.
DEVELOPMENT.	DEVELOPMENT.	DEVELOPMENT.	DEVELOPMENT.
MINING. <i>Sinking.</i> <i>Driving Levels, includes Rising and Sinking Winzes.</i> <i>Stoping.</i> <i>Tramming in Mine & Haulage to Surface.</i> <i>Power, Steam or otherwise.</i>	MINING. <i>Timbering.</i> <i>Driving, Rising, and Sinking Winzes.</i> <i>Stoping.</i> <i>Tramming in Mine.</i> <i>Winding or Haulage to Surface.</i> <i>Pumping.</i>	MINING.	MINING.
TRANSPORT TO MILL. <i>Power, Steam or otherwise.</i>	TRANSPORT TO MILL.	TRANSPORT TO MILL.	TRANSPORT TO MILL.
MILLING & CRUSHING. <i>Power, Steam or otherwise.</i>	MILLING.	MILLING. <i>Water.</i>	MILLING.
CYANIDING. <i>Power, Steam or otherwise.</i>	CYANIDING.	CYANIDING.	CYANIDING.
CONCENTRATES <i>(if any).</i>	<i>None.</i>	CONCENTRATES. <i>Vanners.</i> <i>Chlorination.</i>	<i>None.</i>
POWER <i>(as above distributed).</i>	<i>(Included in Milling.)</i>	FUEL.	<i>(Included in Milling.)</i>
GENERAL CHARGES.	GENERAL CHARGES.	GENERAL CHARGES.	GENERAL CHARGES. ENGINEERS' DEPT. ASSAY DEPT.

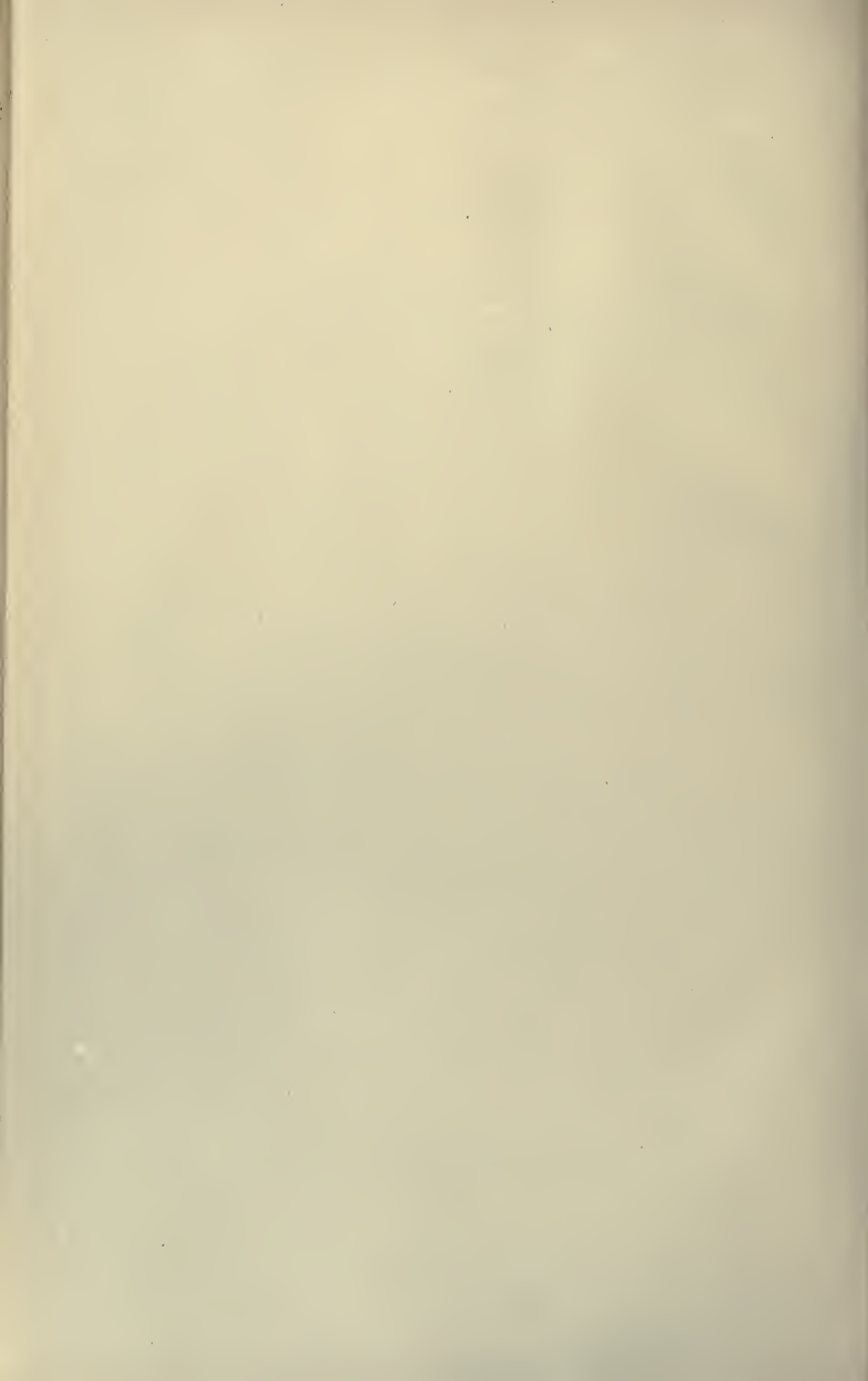
FOR GOLD MINING BUSINESS.

It cannot always, however, be clearly discerned in these published accounts where one department begins and another ends; or what sub-heads have been included in each department, as can be done in the Rules here set forth; the units of costs, therefore, cannot be accurately compared till some uniformity of definition of each department is established.

A comparative table, giving details of the costs of working of the more important Mines of the Rand, is to be found in page 264, Hatch & Chalmers' "Mines of the Rand."

The remarks to that table illustrate the difference of practice which prevails in distributing charges to the different departments.

The proper assessment or distribution of the expenditure requires the careful attention of all persons connected with mining. It is recommended to the various Chambers of Mines that such distribution of costs should form a subject for united action, so that definite rules for the general acceptance may be formulated.



GOLD STATEMENTS.

Introduction.

HAVING dealt in the previous parts of the book with the Organization of the Staff, the Departmental Records, and the Account Books, it now remains to shew how the final results obtained from the treatment of the Ore are set out; and in this connection the Diagram given on page 36 should be referred to.

The London transactions with the Gold are explained, and it is hoped that the explanation may be of general interest.

GOLD STATEMENTS,

Shewing Gold contained in Ore, Residues, and Bullion.

Form 9.

Responsible Officers.—The General Manager, the Commercial Superintendent, and the Accountant.

Entries.

The total tonnage delivered to be treated should be taken from Report **C.**

The tonnage milled in Stamp Battery should be taken from " **D.**

The tonnage treated in the Cyanide Vats should be taken from " **E.**

The weight of Gold Bullion is taken from the Assay Certificate (see page 33).

The ENTRIES should shew the Gold Contents of FINE GOLD in the Ore by the Assay Certificate of the sample of Ore taken when being filled into the mill.

In practice it is found the filling assay is usually slightly under the mine assay. The mine assay is more difficult to obtain accurately than the filling assay; which latter is taken from the Ore after it has passed through the stone-breaker, and consequently the reduced bulk sample is more representative of the whole.

No stocks of Ore on hand are shewn here, as the Ore not filled into the mill remains at the credit of the Working Account at cost price (see page 107).

The ENTRIES also shew the weight and assay of the Bullion and the Gold produced in FINE GOLD.

The differences shew the loss in process, and the Gold left in the residues unextracted.

It should be clearly stated whether the tons are given as 2240 or 2000 lbs.; and this remark applies to tonnage weights throughout the whole of the accounts.

The assays of Ore and Bullion produced are taken from the Assay Certificate (see page 33).

If the Ore contains an appreciable quantity of Silver, provision should be made for shewing it fully in the Statement.

Specimen.—See pages 165 and 166.

Copies for the Head Office.

As all the particulars required for making up the GOLD STATEMENT are found in the various Forms sent monthly to the Head Office, it need only be made up at the mines and sent to the Head Office quarterly, half-yearly, or yearly, as may be required.

SHIPMENTS TO LONDON.

INSURANCE.—All Gold Bullion shipped from the mine should be covered by insurance against all risks, from the mill to its final destination in London, or to the local mint.

LONDON WEIGHTS AND ASSAYS.—The results obtained in London by the weighing and assaying done there may differ from the figures obtained at the mine. As a rule the differences are not great; but they should be observed and noted, and advised back from London to the mine.

LONDON TRANSACTIONS IN GOLD.

Bullion Sales.

All Gold Bullion sent to London is consigned to the Bank of England. A bullion broker should be employed to realize and act for the importing Company, and the Bill of Lading should be sent to him. The broker presents the Bill of Lading to the Bullion Office of the Bank of England, and on payment of freight and 1/9 per package of Bullion (the Bank charge for receiving the Bullion), can obtain his consignment of Gold.

GOLD STATEMENTS.

The broker delivers the Bullion to one of the melters to the Bank, and it is his duty to see the Bullion weighed, melted, re-weighed, and delivered to the refiner to whom it may be sold.

Pieces of the Bullion, after melting, are sent to an assayer to the Bank of England for assay, and account sales (see page 163) are prepared on the basis of his results.

The Gold is paid for on the basis of the price of the market quotation for standard Gold, the Silver is paid for on the price of Fine Silver, both ruling on the day of sale. Certain charges are made for melting, refining, and assaying. A premium of $\frac{1}{2}$ d. per oz. is allowed for ordinary "battery" Gold, and a reduction for Gold produced by the cyanide process—the latter being always more or less impure, owing to being contaminated with zinc and lead, in varying proportions, according to the purity of the zinc used at the mine, and the subsequent more or less complete elimination of the zinc from the Gold mud.

Weighing.

The account sales shew the weight of the Bullion before and after melting, the latter being the basis of sale price.

Assaying.

The assay must be made by an assayer to the Bank of England, who gives a certificate of his assays in Fine Gold and Silver, to the $\frac{5}{10,000}$ th part for the former, and to the $\frac{1}{10,000}$ th part for the latter.

Cost of Melting and Assaying.

The charge is $\frac{1}{4}$ d. per oz. of Bullion for melting, and 4/ per bar for assaying, except in the case of Cyanide Bars, when two distinct assays of each bar must be made—the fee being, consequently, 8/ per bar.

Refining.

The charge for this is 4d. per oz. of Bullion after melting.

Price.

The Bank of England price for Gold is £3 17s. 9d. per oz. of Standard Gold (22 carat or 916.6 fine); but the market price may be more if the demand for Gold be great. The refiners pay $\frac{1}{2}$ d. premium per oz. standard for ordinary refinable Gold Bullion (in addition to the premium that may be due to the market demand); but this premium is not allowed in the case of Cyanide Gold. The assay shews the Fine Gold contained per 1000 parts of the bar, and by adding $\frac{1}{10}$ th of the total Fine Gold contents in ozs. the total ozs. of Standard Gold is found. In the example given below, 500 ozs. of Bullion, assaying 800/1000 Fine Gold, becomes 400 ozs. Fine Gold; add $\frac{1}{10}$ th, and the total Standard Gold contents is 436.363.

An allowance is made for the Silver according to the current market price of Fine Silver, which is, of course, higher than the more usually quoted price of Standard Silver (925/1000 fine).

Extra Deduction for Base Bullion (Cyanide Gold).

This Bullion being generally very impure, a special deduction is made for the extra cost of refining, varying with the fineness shewn by the assay. The present rate of deduction is as follows:—

800 Fine and above,	...	...	2 per 1000.
700 " "	...	...	3 "
600 " "	...	...	4 "
Below 600 " "	...	...	5 "

The mean of two separate assay pieces of the metal is taken as definitive of the Fine Gold contents per 1000 parts. From this figure is deducted the above allowances, according to the fineness. In the example given on following page it is assumed that one assay shewed 801, and the other assay 799 per 1000—the mean being 800/1000.

GOLD STATEMENTS.

ACCOUNT SALES.

Ordinary Bar Gold.

	Oz.		Assay.		
<i>After melting,</i>	500·000	<i>Gold,</i>	800·0		
		<i>Silver,</i>	150·0		
<i>Fine Gold,</i>	400·000	<i>Oz. =</i>	436·363	<i>Standard at 77/11½,</i>	£1700 18 1
<i>Fine Silver,</i>	75·000			<i>at 32¼d.,</i>	10 1 7
Less—					£1710 19 8
		<i>Melting,</i>	£,, 10 6		
		<i>Assay,</i>	„ 4 „		
		<i>Refining,</i>	8 6 8		
					9 1 2
					£1701 18 6

London, 14th December, 1896. Basis—Standard Gold, 77/11 per oz.

Note.

The above price, 77/11½, is made up of the Bank of England price of 77/9 per oz. for Standard Gold, the regular premium allowed by the refiners of ½d. per oz., and the market premium of 2d. per oz. on the day of sale.

Cyanide Bar Gold.

	Oz.		Assays.	Mean.	Less 2/1000.
<i>After melting,</i>	500·000	<i>Gold,</i>	801·0	799·0	800·0
		<i>Silver,</i>	149·0	151·0	150·0
<i>Fine Gold,</i>	399·000	<i>Oz. =</i>	435·272	<i>Standard at 77/11,</i>	£1694 14 11
<i>Fine Silver,</i>	75·000			<i>at 32¼d.,</i>	10 1 7
Less—					£1704 16 6
		<i>Melting,</i>	£,, 10 6		
		<i>Assays,</i>	„ 8 „		
		<i>Refining,</i>	8 6 8		
					9 5 2
					£1695 11 4

London, 14th December, 1896. Basis—Standard Gold, 77/11 per oz.

Note.

The above price of 77/11 is made up of the Bank of England price of 77/9 per oz. for Standard Gold, and a market premium of 2d. per oz. on the day of sale.

This being Cyanide Gold, the refiners do not allow the ½d. premium.

GOLD STATEMENTS.

ON REFINING CYANIDE BULLION.

The advantage of refining the Cyanide Bullion, as far as possible, at the Mine, has been drawn attention to by Mr. Arthur C. Claudet, in a discussion at a meeting of the Institute of Mining and Metallurgy. (See *Transactions of the Institute*, Vol. IV., page 250.) The following comparative table was prepared by him, and is reprinted with his kind permission. It shews that the deductions from the gross value of the Gold rapidly increase as the fineness of the Gold diminishes:—

	Fine- ness per 1000	Weight of Bullion.	No. of Bars.	No. of Assays.	Melting per Oz. Bullion.	Refining per Oz. Bullion.	Per Oz. Standard.	Price per Oz. Standard.	Value of Bullion.	Melting, Assaying, and Refining.	Nett Value of Bullion.	Value Realized per Oz. Fine Gold.
		Oz.			D.	D.	Premium. D. <i>Deduction per Mil.</i>	S. D.	Plus Premium. £ S. D. Less Deduction.	£ S. D.	£ S. D.	S. D.
1. ORDINARY CAPE GOLD,	850	1,000	2	2	$\frac{1}{4}$	4	$\frac{1}{2}$	77 9	3,606 16 1	18 2 2	3,588 13 11	84 5
2. CYANIDE GOLD, ...	800	1,062	2	4	"	"	2	"	3,595 17 3	19 11 0	3,576 6 3	84 2
3. " " ...	700	1,214	2	4	"	"	3	"	3,589 8 6	22 5 11	3,567 2 7	83 11
4. " " ...	600	1,417	3	6	"	"	4	"	3,580 16 10	26 5 10	3,554 11 0	83 8
5. " " ...	500	1,700	3	6	"	"	5	"	3,568 16 6	31 6 1	3,537 10 5	83 3
6. " " ...	400	2,125	4	8	"	"	5	"	3,568 16 6	39 4 7	3,529 11 11	83 1
7. " " ...	300	2,833	5	10	"	"	5	"	3,568 16 6	52 3 4	3,516 13 2	82 9

It is assumed that all the Bullion is melted, and cast into bars of 500 ozs. to 600 ozs. weight; in the case of ordinary Bullion, the assay piece is cut off one end of the bar; in the case of Cyanide Gold the metal, while molten, is "dipped" twice for each bar, thus making two assays instead of one; the mean of the two assays is taken as a settlement of the fineness. The assay of each dip is made in triplicate. The above table is based upon a hypothetical case, assuming that 850 ozs. of Fine Gold are to be prepared for sale to the refiners. According to the more or less complete separation of the objectionable impurities, the Bullion becomes higher or lower in fineness, and diminishes or increases in weight. The Silver that is present is not taken into account, as it is paid for in full at Fine Silver price.

Each bar contains 927·3 ozs. Standard Gold, at 77s. 9d. = £3,604 17s. 6d.

SPECIMEN of STATEMENT shewing GOLD For Year

MONTH.	ORE DELIVERED TO THE MILL & DRY CRUSHERS FOR TREATMENT.					MILLING AND AMALGAMATION BY MERCURY.											
	Ore.			Average Assay. Per Ton.	GOLD.	Ore filled into Mill.				Tailings		EXTRACTED per Ton as shown by Assay.	Gold.	BULLION.		GOLD.	ACTUAL EXTR. TIO. %
	Tons Gross Weight.	Moisture %	Tons Dry Weight.		Contents. Ounces.	Tons Gross Weight.	Moisture %	Tons Dry Weight.	Average Assay. Per Ton.	Average Assay. Per Ton.	Estimated Yield. Fine Ounces.		Produced. Ounces.	Fineness.	Actual Yield. Fine Ounces.		
				Dwts.					Dwts.	Dwts.	Dwts.						
Jan.,	1,550	11-00	1,380	7-97	549-93	...	...	...	...	...	...	...	...	...	...	...	...
Feb.,	1,347	10-90	1,200	8-33	499-80	...	...	...	...	...	...	...	...	...	...	...	...
Mar.,	1,183	13-20	1,027	9-60	492-96	...	...	...	...	...	...	...	...	...	...	...	...
Apr.,	1,000	15-00	850	10-00	425-00	...	...	...	...	...	...	...	...	...	...	...	...
May,	1,412	11-50	1,250	10-56	660-00	...	...	...	...	...	...	...	...	...	...	...	...
June,	1,527	11-02	1,359	10-28	698-53	...	...	...	...	...	...	...	...	...	...	...	...
July,	2,429	12-00	2,138	10-50	1,122-45	...	...	...	...	...	...	...	...	...	...	...	...
Aug.,	2,550	11-30	2,262	11-05	1,249-76	...	...	...	...	...	...	...	...	...	...	...	...
Sept.,	2,896	10-50	2,592	10-50	1,360-80	...	...	...	...	...	...	...	...	...	...	...	...
Oct.,	3,015	10-90	2,686	12-32	1,654-58	...	...	...	...	...	...	...	...	...	...	...	...
Nov.,	2,940	12-40	2,575	12-00	1,545-00	...	...	...	...	...	...	...	...	...	...	...	...
Dec.,	3,267	11-00	2,908	12-50	1,817-50	...	...	...	...	...	...	...	...	...	...	...	...
	25,116	11-30	22,227	10-866	12,076-31	...	...	...	...	...	...	...	...	...	...	...	...

Dr.

Ore delivered for treatment—25,116 Tons = 22,227 Ton

Cr.

Ore Milled— Tons = Tons Dry Weight

Ore Dry Crushed and treated direct by Cyanide—

25,116 Tons = 22,227 Tons Dry Weight

Total Amount of Fine Gold Recovered by Milling,

“ “ “ Cyanide,

Gold Lost in Process of Milling,

Gold left in Spent Ore after Cyanide Process

Gold Lost in Process of Cyaniding,

contained in ORE, RESIDUES, and BULLION,
1895.

DRY CRUSHING AND EXTRACTION BY CYANIDE.

Ore filled into Dry Crusher.			Tailings from Mill. Dry Weight	TOTAL TONS TREATED.	Charges filled into Vats. Average Assay. Per Ton.	Spent Ore discharged from Vats. Average Assay. Per Ton.	EXTRACTED per Ton as taken by Assay.	Gold.			BULLION.		GOLD.	ACTUAL EXTRACTION. %
Tons Gross Weight.	Moisture. %	Tons Dry Weight.						In Charges. Ounces.	In Spent Ore. Ounces.	Estimated Yield. Fine Ounces.	Produced. Ounces.	Fineness.	Actual Yield. Fine Ounces.	
					Dwts.	Dwts.	Dwts.							
1,550	11-00	1,380	...	1,380	7-97	2-60	5-47	540-98	172-50	377-43	568-81	658	374-28	68-00
1,347	10-90	1,200	...	1,200	8-33	2-70	5-63	499-80	162-00	337-80	493-43	670	330-59	66-16
1,183	13-20	1,027	...	1,027	9-60	2-40	7-20	492-96	123-24	369-72	529-18	694	367-25	74-50
1,000	15-00	850	...	850	10-00	2-00	8-00	425-00	85-00	340-00	491-33	696	339-40	79-86
1,412	11-50	1,250	...	1,250	10-56	2-50	8-06	660-00	156-25	503-75	763-74	653	498-72	75-56
1,527	11-02	1,359	...	1,359	10-28	2-30	7-98	698-53	156-28	542-25	860-32	630	542-00	77-59
2,429	12-00	2,138	...	2,138	10-50	2-20	8-30	1,122-45	235-18	887-27	1,334-64	664	886-10	73-95
2,550	11-30	2,262	...	2,262	11-05	2-50	8-55	1,249-76	282-75	967-01	1,454-29	660	959-83	76-80
2,896	10-50	2,592	...	2,592	10-50	2-90	7-60	1,360-80	375-84	984-96	1,461-14	675	986-27	72-48
3,015	10-90	2,686	...	2,686	12-32	2-60	9-72	1,654-58	349-18	1,305-40	1,926-46	676	1,302-29	78-71
2,940	12-40	2,575	...	2,575	12-00	2-20	9-80	1,645-00	283-25	1,261-75	1,823-68	690	1,258-34	81-45
3,267	11-00	2,903	...	2,903	12-50	2-00	10-50	1,817-50	290-80	1,526-70	2,191-67	695	1,523-21	83-81
25,116	11-30	22,227	...	22,227	*10-866	2-315	8-551	12,076-31	2,672-27	9,404-04	13,899-24	674	9,368-37	77-58

* (Mines Assay has been taken here, but if the Ore is filled out of Bins, it should be sampled again and re-assayed.)

Dry Weight, Total Gold Contents per Assay, 12,076-31 Ounces.

Total Gold Contents per Assay, _____ Ounces.

Actual Yield, _____ ozs.

Loss in Process, _____ ozs.
_____ Ounces.

Total Gold Contents per Assay, 12,076-31 Ounces.

Actual Yield, 9,368-37 ozs.

Residue of Gold in Spent Ore, 2,672-27 ozs.

Loss in Process, 35-67 ozs.
_____ 12,076-31 Ounces.

_____ Ounces.

9,368-37 Ounces. = 77-58 % of Total Contents.

_____ ozs.

2,672-27 ozs.

35-67 ozs.
_____ 2,707-94 Ounces.

12,076-31 Ounces = 22-42 % of Total Contents.
_____ 100-00 %

GOLD STATEMENTS.

SPACE RESERVED FOR MS. NOTES.

GOLD STATEMENTS.

SPACE RESERVED FOR MS. NOTES.

GOLD STATEMENTS.

SPACE RESERVED FOR MS. NOTES.

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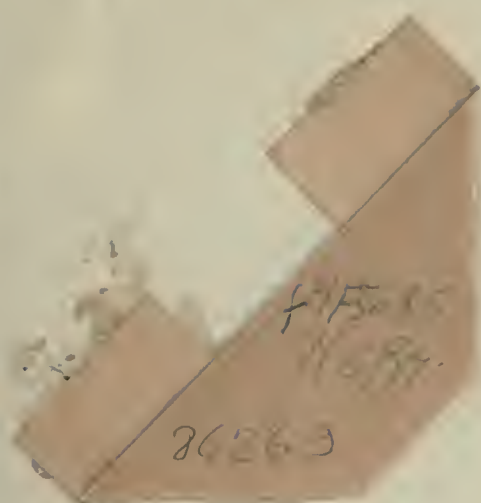
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